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***MWRI POLICY ON IRRIGATION  
MANAGEMENT TRANSFER***

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**Water Policy Program**

**International Resources Group**

**Winrock International**

**Nile Consultants**

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MANAGEMENT TRANSFER***

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## Executive Summary

This report and its accompanying set of appendices presents the results of the work carried out in completion of Benchmark 4 of Section C of the agreement between the Government of the Arab Republic of Egypt (GOE) and USAID/Egypt for Tranche IV (FY 99/00).

The results, findings and recommendations of this benchmark were presented to the MWRI Water Policy Steering Committee at the final Tranche IV Benchmark Workshop held on Nov. 9-10, 2001. The draft version of this report and its appendices were made available to the Steering Committee members and other key officials of MWRI, USAID and other involved GOE entities. Following comprehensive discussion and deliberation, the draft report was adopted by the Steering Committee. The Steering Committee subsequently forwarded its recommendations for this benchmark to H.E., the Minister of MWRI, for approval.

The benchmark states:

***“The GOE (MWRI) will adopt a policy and strategy for transferring management of selected sections of the irrigation system to stakeholders and/or the private sector.”***

The two Verification Indicators for the benchmark are:

- 1. The MWRI will develop a policy on irrigation management transfer, to include a plan for phased implementation and to identify legal requirements, by 31 December 2000.*
- 2. Application of the policy will be initiated in two selected pilot areas by 31 December 2001.*

To carry out the work of this benchmark, the IMT Working Group was established, led by the EPIQ senior sociologist, and with members representing the Water Policy Advisory Unit and key units from the Irrigation Sector, Horizontal Expansion & Projects Sector, Drainage Authority, Mechanical & Electrical Department, and Irrigation Advisory Service. A work program was developed to cover activities for Phase 1: October 1999 to December 2000, culminating in promulgation of an MWRI policy on Irrigation Management Transfer (IMT); and Phase 2: January 2001 to December 2001, which tested the policy in four pilot areas. This work program was incorporated into the overall EPIQ/MWRI work plan. Under the APRP program of USAID, policy reforms were achieved during 1997-1999 that strengthened the process of expanding user participation at secondary levels of the irrigation/drainage system. MWRI promulgated a policy allowing for the formation of secondary-level *Branch Canal Water User Associations* (BCWUAs). One of the seminal recommendations from that BCWUA policy was to develop and pilot-test a policy on transferring selected water management and operational functions from GOE to the users.<sup>1</sup>

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<sup>1</sup> Simultaneous with the APRP IMT program, the MWRI launched a pilot program under assistance from the Netherlands Government, on establishment of Water Boards.

As in the case of Egypt, governments around the world are attempting to reduce their recurring expenditures on irrigation and stabilize deterioration of scheme infrastructure without sacrificing the productivity of irrigated agriculture. Many governments assume that the transfer of management responsibility to farmer organizations will improve the accountability of the irrigation service to farmers, make the service more cost-efficient, motivate farmers to invest more in maintaining irrigation systems and, ultimately, make irrigation systems and irrigated agriculture more sustainable. The GOE transfer of major management responsibilities for sections of the irrigation system above the *mesqa*-level to stakeholders and/or the private sector is a bold advance toward the goal of participatory management and privatization of the irrigation system. Although IMT is now a major feature of irrigation delivery in many other countries, it is only now being launched in Egypt. Successful implementation of this benchmark has been seen as a major turning point for this process to take hold at the grass-roots level of the GOE.

As a result of IMT, the role of the GOE in water management can be expected to change significantly, although there will continue to be an essential management role for the GOE, in particular for MWRI. There is also expected to be a rationalization of the respective roles of government and users in water management. This present report, which presents an example of how management functions can be shared between irrigation users and the GOE, is an example of "win-win" dynamics for all the partners.

Unlike earlier irrigation improvement efforts in Egypt (e.g. EWUP, ISM, and IIP), which can be classified as "*farmer participation in irrigation improvement*", the principle of the IMT model allows the private sector to take managerial and financial control over operation and maintenance. This will result in direct and immediate reductions in government expenditures, freeing government funds for tasks the private sector is unable to effectively undertake.

This benchmark was implemented over a two-year period and was divided into two phases. Phase I focused on the following:

- Analyzing IMT experiences in other countries;
- Assessing the impact of the program in Egypt to develop BCWUAs and Water Boards;
- Preparing a clear understanding and consensus view regarding which components of irrigation and drainage are to be included in the Egyptian IMT program;
- Developing the results of these analyses into a set of prioritized directional guidelines and policy for Egypt;
- Identifying an IMT strategy or multiple strategies suitable to the Egyptian context and incorporating this into the IMT policy;
- Considering all approaches and strategies for IMT involving the private sector, especially water users and their organizations in all land categories (new, old, old-new, groundwater, etc.); and
- Issuing a policy document on IMT with a plan for phased implementation in the selected areas, focusing on the following priority issues:
  - administrative aspects of IMT,
  - harmonizing all relevant GOE laws with the IMT process,
  - assessing water user interest in, and expectations of, the IMT process,

- estimating potential private sector capability in water delivery and O&M, and
- evaluating irrigation and drainage practices in each study area.

Phase II focused on the following major activities and outputs:

- Enactment of IMT implementation plan at four pilot sites;
- IMT Socio-Economic Baseline Study;
- *Process Documentation* on formation of pilot BCWUAs;
- Training plan for BCWUAs in O&M;
- Memoranda of Understanding (MOUs) between MWRI & BCWUAs;
- Implementation of pilot canal physical rehabilitation assessment and planning requirements;
- Assessment of IMT global experiences and impacts;
- Analysis of major IMT international experience;
- IMT multi-media public awareness campaign material; and
- MWRI institutional arrangement for IMT post-APRP.

Based on the above, the following were the discrete outputs for the second phase of this benchmark:

- IMT Phase II Implementation Plan
- IMT Socio-Economic Baseline Study Report
- IMT Irrigation/Drainage System Physical Assessment & Rehabilitation Report
- Process documentation of first year of IMT implementation on four pilot BCWUAs
- Ministerial Decrees issued by the MWRI Under-Secretaries in the pilot IMT governorates
- BCWUA/MWRI Memoranda of Understanding regarding IMT
- IMT Public Awareness campaign material
- Final Report on Findings and Conclusions of Benchmark

The MWRI policy statement, with twenty policy clauses detailing procedures and processes, has been approved as follows<sup>2</sup>:

***In a phased process of application, the MWRI will transfer selected sub-sections of Egypt's irrigation and drainage network to users and/or the private sector acting on behalf of the users.***

The IMT policy statement objectives are to:

- Determine the prerequisites for introducing handing over of management responsibilities to stakeholders and/or the private sector in Egypt;
- Define the strategies and steps required to implement partial, incremental and total management transfer in all categories of land, including old lands. These are based on a

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<sup>2</sup> The complete policy and its subordinate clauses can be found in Appendix A.

phased transfer process beginning with a period of negotiated joint management prior to system hand-over; and

- Consider roles and responsibilities of MWRI in the transfer process, particularly in each of the various stages of transfer.

The IMT phased implementation plan includes the following elements:

- Legal changes required to support the IMT process, including contracting and assessment capabilities;
- Definition of roles and relationships between public and private sector entities as they relate to IMT;
- Definition of administrative and financial management systems for O&M;
- Training of staff and development of plans for organizational restructuring;
- Arrangement for provision of support services;
- Development of Branch Canal Water User Associations;
- Upgrading of the physical irrigation/drainage infrastructure as part of the transfer process.

The IMT Working Group assisted the task group responsible for drafting the revised law in areas directly affecting user participation and management transfer. The relevant sections of the draft law are indicated in Articles 32, 33, 34 and 35. MWRI will undertake the process of formalizing the legislation before it is officially enacted. The primary distinguishing feature of the revised law lies in its inclusiveness with respect to levels of the irrigation system and types of entities that may be assigned managerial and operational aspects of the irrigation and drainage network. The relevant Articles of the proposed revised law are found in Chapter 6 of this report.

BCWUAs were formed by ministerial decree at the four IMT pilot areas. This activity was implemented with the active involvement direction of the Irrigation Advisory Service (IAS) and entailed a multi-stage process of intensive meetings and negotiations over a period of several months, resulting in the issuance of Under-Secretarial decrees from each governorate formalizing the registration and signing of *memoranda of understanding* (MOUs) between the BCWUAs and the MWRI.

An *IMT Baseline Socio-Economic Study* (see Appendix G) was carried out in the four IMT pilot areas prior to initiation of the BCWUA organizing process and before meetings with stakeholders in each area. The purpose of the *IMT Baseline Socio-Economic Study* is to describe, analyze, and explain farmers' agriculture behavior and provide a baseline data source that can be used to assess levels of program impact. As has been noted, the subject of IMT had not been introduced to any of the areas prior to the collection of interview data. Therefore, the views expressed in this report do not reflect any level of understanding of IMT concepts, objectives and procedures.

The study covered eleven major areas of data collection: 1) background information (i.e., the socio-demographic and economic characteristics of the respondents such as gender, age, education, occupation, marital status, and individual income); 2) other members of the household (household was defined as all those living under one roof and eating in the same kitchen); 3) patterns of land holdings examining farmers' access to land; 4) the crop structure of

both seasonal and permanent crops, as well as farmers' reasons for cultivating such crops; 5) the conditions of irrigation, including the issue of fragmentation, farmers' views on the impact of shortages on crop yields, the methods used to compensate, and irrigation technology and the disputes associated with its use; 6) farmers' attitudes toward irrigation maintenance; 7) the perceived abilities of the water users, the government, and the private sector to perform various maintenance functions; 8) the perceived expectations by farmers resulting from transfer on the performance of the irrigation network; 9) drainage issues, focusing on the farmers' view of current drainage management, abuse by the farmers and the forms it takes, and the potential impact of transferring the management of the drains to the WUAs, including tile drainage; 10) post-transfer of the system to users, especially the role of water users and the state in the management and maintenance of the irrigation network; and, 11) the impact of the current irrigation system on elements of the social fabric and on issues pertaining to social conflict and conflict resolution, and the anticipated impact of the irrigation transfer project on these issues.

*A Public Awareness Campaign (PAC)* was developed by the EPIQ Water Policy Team's IMT Working Group with active participation and input by all stakeholders in the IMT process. The PAC includes a comprehensive strategy and a set of communication tools to educate all targeted audiences on how to participate in and support IMT. The purpose of the IMT/PAC is to promote a better understanding of IMT, support the ongoing development of this program, and motivate people to remain continuously involved.

*A Pilot Physical Assessment and Rehabilitation Plan* was carried out under the aegis of the IMT Working Group. The assessment and rehabilitation of the physical systems is an integral part of the transfer process -- experience from other countries clearly demonstrates that before a system is to be transferred it needs to be brought up to an acceptable condition and performance standard. This assessment and plan involved all BCWUA members from the four pilot areas and MWRI staff to determine the scope and scale of rehabilitation required to upgrade the four physical infrastructures. In each case, the terms and conditions for the rehabilitative work were negotiated between the BCWUA and MWRI and comprise part of the memorandum of understanding. The work to be carried out varies considerably from one location to another and ranges from basic maintenance features to improvements requiring significant investments.

A major feature and achievement of this component is cost-sharing, with the BCWUA being responsible for covering all infrastructure costs in excess of those related to simple maintenance. The MWRI will recover the cost of rehabilitation works from the water users, as per the regulations stipulated in Law 213 of 1994.

In a document dated November 29, 2001, H.E. the MWRI Minister signed an executive order instructing the Chairpersons of the Irrigation Department, the Mechanical and Electrical Department, and the Drainage Authority, to proceed with the program for rehabilitation of the four IMT pilot canals. The order, attached in Appendix A, authorizes the three departments to undertake the work in consultation with the BCWUAs and in accordance with the budgetary and technical requirements detailed in Appendix E of this report.

The project carried out a review of IMT performance history by studying reported experiences and visiting several countries that have introduced IMT programs. This *global experience* is particularly useful in terms of establishing performance parameters for the Egyptian context.

The need to formalize the IMT process within the MWRI is central to sustaining its growth and progress. The IMT transfer process is not under the purview of any one agency of the MWRI. The Irrigation Department, the Drainage Authority, and the Mechanical & Electrical Department are the major agencies within MWRI to implement, support and coordinate the transfer process. It is suggested that the Office of the Minister provide overall policy guidelines and performance tracking through continuation of the *IMT Steering Committee*, and that the Irrigation Advisory Service (IAS) take the lead in coordinating IMT programs at the field level, with an assigned liaison officer to each of the main line departments.

Additional recommendations to assure effective application of the IMT policy are:

1. MWRI will complete procedures to amend laws on water management in order to 1) formalize transfer of parts of the system to users and/or the private sector, and 2) allow formation and registration of WUAs in all categories of land and among primary, secondary and tertiary levels of the irrigation system.
2. MWRI will expand its pilot program in line with the approved phased implementation schedule plan approved in this report.
3. MWRI should continue to support and strengthen the role of the inter-disciplinary ministerial IMT Working Group under the direction of the IMT Steering Committee, which reports to the Minister.
4. MWRI will formally take necessary action to incorporate *mesqa*-level and branch canal irrigation and drainage functions as part of the mandate for the management transfer entities.
5. As part of its support to the IMT program, the MWRI should formally undertake a program to establish, with BCWUA cooperation and cost-sharing, strategically-located maintenance centers for spare parts, equipment and other O&M material used in irrigation and drainage at the branch canal level.
6. In conjunction with the objectives of the MWRI plan for Integrated Water Management Districts, BCWUAs and field engineers will jointly plan, design and implement branch and distributary canal improvements in the command area and establish continuous flow and downstream water level control.
7. A branch canal O&M cost-sharing plan process (as described in the Tranche III APRP Water Policy Report No. 17 on Branch Canal Water User Associations) should continue to be refined and adopted as a standard feature of the BCWUA management transfer implementation process.

8. Regular coordination should be maintained with all other projects working in this sector, e.g. the Irrigation Improvement Project, the Water Boards Project, etc., and with the MWRI committee on water user participation.
9. Awareness-building programs for BCWUAs and MWRI engineers, technicians and field agents need to focus on priority IMT objectives and issues. MWRI staff will need basic introductory training on IMT as well as periodic refresher training in a number of key subjects.
10. To ensure quality and minimize duplication of services following management transfer, local level coordination with other public and private sector agencies needs to be formalized, e.g. with Agricultural Extension, Drainage Authority, cooperatives, banks, growers' associations, local councils, research institutes, etc.
11. Management transfer (IMT) should not be restricted to irrigation activities only; transfer should be implemented in a holistic modality and extend to all aspects of water resource (irrigation, drainage, groundwater, etc).
12. With respect to expansion of IMT beyond the pilot stage, MWRI should examine the improvement projects and the rehabilitation works needed in these areas and how to differentiate between improvement and rehabilitation.
13. A major Public Awareness Campaign needs to be launched specifically for the IMT effort. MWRI will need to fund and manage the implementation of the PAC. The strategy and details of such a campaign are included as Annex H.
14. MWRI must establish an IMT Monitoring and Evaluation System, which will be particularly important at the time of IMT expansion. The MES will serve three primary functions: 1) track implementation efforts for problems and bottlenecks, 2) confirm and verify progress and achievements, and 3) provide the basis for assessing post-facto beneficiary impact.
15. MWRI will need to study alternative methods of financing expansion of the IMT pilot program nationwide, including public/private co-financing, establishment of a Water Partnership Fund, and government loan mechanisms to bring MWRI, private sector entities and NGOs together in a cooperative effort to expand IMT.
16. MWRI will need to evaluate the various pilot programs dealing with management transfer and establishment of WUAs to define a policy for such efforts, including institutionalizing implementation under one unit within MWRI to build upon the successes achieved to date, to expand these programs nationally and to ensure sustainability.

## List of Abbreviations and Acronyms

APRP	Agricultural Policy Reform Program
BCWUA	branch canal water user association
EPADP	(MWRI) Egyptian Public Authority for Drainage Projects
EPIQ	Environmental Policy Indefinite Quantity
EWUP	Egypt Water Use Project
GOE	Government of Egypt
HCDWI	Head of the Central Directorate for Water Resources & Irrigation
HEPS	(MWRI) Horizontal Expansion & Projects Sector
IAS	Irrigation Advisory Service
IDRC	International Development Research Council
IDS	irrigation and drainage system
IDSBA	Irrigation & Drainage System Beneficiary Association (equivalent to BCWUA)
IFAD	International Fund for Agricultural Development
IIP	Irrigation Improvement Project
IIS	(MWRI) Irrigation Improvement Sector
IMT	irrigation management transfer
INPIM	International Network on Participatory Irrigation Management
IRG	International Resources Group, Ltd.
ISM	Irrigation Systems Management Project
JICA	Japan International Cooperation Agency
MALR	Ministry of Agriculture and Land Reclamation
M&E	monitoring and evaluation
MED	(MWRI) Mechanical & Electrical Department
MOTS	Ministry of Trade and Supply
MPE	Ministry of Public Enterprise
MWRI	Ministry of Water Resources and Irrigation
NWRC	(MWRI) National Water Research Center
O&M	operations and maintenance
PAC	public awareness campaign
PRA	participatory rural appraisal
TORs	terms of reference
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WPAU	Water Policy Advisory Unit
WPRP	Water Resources Results Package
WUA	water user association

# 1. Introduction

## 1.1 Overview

The Ministry of Water Resources and Irrigation (MWRI) is the primary government agency charged with the management of water resources in Egypt. Escalating population growth, a desire for agricultural expansion, and increasing demands on surface water supply play significant roles in water delivery capability. Both MWRI and USAID are aware of the need to develop policy reform that will effectively address these and other issues that determine utilization efficiency, productivity, and protection of water resources.

During FY 96/97 the MWRI and USAID developed a “water resources results policy package” that focused on producing four major results:

- 1) improved irrigation policy assessment and planning process,
- 2) improved irrigation system management,
- 3) improved private sector participation in policy change, and
- 4) improved capacity to manage the policy process.

The MWRI and USAID designed the water resources results package with the following objectives:

- To increase MWRI’s ability to analyze and formulate strategies and policies related to integrated water supply augmentation, conservation and utilization, and protection of Nile water quality.
- To improve water allocation and distribution management policies for conservation of water while maintaining farm income.
- To recover the capital cost of *mesqa* improvements and establish a policy for the recovery of O&M costs of the main system.
- To increase users' involvement in system O&M.
- To introduce a decentralized planning and decision-making process at the irrigation district level.

In early 1997 the water resources results package was integrated into USAID’s Agricultural Policy Reform Program (APRP). APRP is a broad-based policy reform program involving five GOE ministries (MWRI, Ministry of Agriculture and Land Reclamation (MALR), Ministry of Trade and Supply, Ministry of Public Enterprise, and Ministry of International Cooperation). APRP has the goal of developing and implementing policy reform recommendations in support of private enterprise in agriculture and agribusiness.

USAID supports the MWRI in five program activities under APRP. These five activities are: 1) water policy analyses, 2) water policy advisory unit, 3) water education and communication, 4) main systems management, and 5) Nile River monitoring, forecasting and simulation. USAID

supports the Ministry's efforts through technical assistance and cash transfers (annual *tranches*) based on achievement of policy reform benchmarks.

Technical assistance for the water policy analyses is provided through a task order (Contract PCE-I-00-96-00002-00, Task Order 807) under the umbrella of the Environmental Policy and Institutional Strengthening Indefinite Quantity Contract (EPIQ) between USAID and a consortium headed by the International Resources Group, Ltd. (IRG) and Winrock International. Local technical assistance and administrative support is provided through a subcontract with Nile Consultants.

## **1.2 Purpose of the Report and Background**

A memorandum of understanding between the Arab Republic of Egypt (GOE) and USAID listing mutually agreed policy reform benchmarks for the APRP Tranche IV period (1 September 1999 to December 31, 2001) was signed on September 28, 1999. Benchmark 4 of Section C of the APRP medium/long term policy goals, "Agricultural Land and Water Resource Investments, Utilization and Sustainability" states:

***"The GOE (MWRI) will adopt a policy and strategy for transferring management of selected sections of the irrigation system to stakeholders and/or the private sector."***

The two Verification Indicators for the benchmark are:

1. The MWRI will develop a policy on irrigation management transfer, to include a plan for phased implementation and to identify legal requirements, by 31 December 2000.
2. Application of the policy will be initiated in two selected pilot areas by 31 December 2001.

In support of this policy benchmark activity, the IMT Working Group was set up, led by the EPIQ senior sociologist, and with members representing the Water Policy Advisory Unit and key units from the Irrigation Sector, Horizontal Expansion & Projects Sector, Drainage Authority, Mechanical & Electrical Department, and Irrigation Advisory Service. A work program was developed to cover activities between October 1999 and December 2001. This work program was incorporated into the overall EPIQ work plan.

The IMT benchmark had a two-year implementation program prospectus, with the verification indicators clearly designated for Year 1 and Year 2. The IMT Working Group developed a methodology that allowed for acceleration of the pilot identification process (primarily Year 2 activities), while focussing on formulation of a policy on irrigation management transfer. It was decided by the Steering Committee to work on Year 2 designated program activities during the first year in order to foster an IMT policy that benefits from initial pilot implementation efforts. Work on this benchmark policy reform started September 1999 and was to be completed before the end of December 2001. Activities relating to the second year program and to the second verification indicator, i.e. pilot implementation, are being reported in this final benchmark report.

### **1.3 Organization of this Report**

Following the Introduction of this report, there is a general overview of participatory irrigation management experiences in Egypt (Chapter 2) resulting in the present management transfer program. A description of the IMT benchmark methodology is presented in Chapter 3. Chapter 4 summarizes the MWRI policy on irrigation management transfer and is followed by the MWRI plan for phased implementation of IMT (Chapter 5). The proposed provisions in the national water law that are being made to give IMT a legal foundation comprise Chapter 6. Chapter 7 contains the results of the organizing process of four IMT pilot Branch Canal Water User Associations (BCWUAs). A summary of the IMT Public Awareness Campaign comprises Chapter 8. Chapter 9 describes the results of the IMT pilot physical assessment and rehabilitation. Chapter 10 details lessons learned from IMT experiences in other countries. The necessary capacity building for successful IMT implementation in Egypt is described in Chapter 11, followed by proposed IMT institutional arrangements in MWRI (Chapter 12). And Chapter 13 puts forth other recommendations for the future of IMT in Egypt.

The report has eight sets of appendices, which comprise the complete documentation of the results summarized in the main report.

### **1.4 MWRI Approval of the IMT Results and Report**

The results, findings and recommendations of this benchmark were presented to the MWRI Water Policy Steering Committee at the final Tranche IV Benchmark Workshop held on Nov. 9-10, 2001. The draft version of this report and its appendices were made available to the Steering Committee members and other key officials of MWRI, USAID and other involved GOE entities. Following comprehensive discussion and deliberation, the draft report was adopted by the Steering Committee. The Steering Committee subsequently forwarded its recommendations for this benchmark to H.E., the Minister of MWRI, for approval.

## 2. Background and Problem Description

### 2.1 Overview of Water User Participation in Water Management in Egypt

The primary Government of Egypt agency responsible for water resources management is the Ministry of Water Resources and Irrigation. As such, it is mandated to plan, construct, operate, manage, and maintain the irrigation and drainage network in Egypt. The MWRI distributes irrigation water to Egypt's "old lands" by diverting water at various points from the Nile River to principal canals, which, in turn, feed a complex network of main canals. Water is generally supplied throughout the network below the surrounding farm ground level, which requires farmers to lift water (using pumping devices) from the watercourse supplying their farms.

In 1981, the MWRI initiated the Irrigation Management Systems (IMS) Project with USAID funding. The IMS Project was amended in 1984 to take advantage of the seven-year Egypt Water Use and Management Project (EWUP, 1977-84), an interdisciplinary project implemented by the MWRI. The recommendations of that project related to farmer participation in irrigation management were:

- Farmers should be involved in improvements to the water delivery system.
- Farmers must play a role in ensuring more efficient operations, improved maintenance and protection of physical works.
- Farmers should become involved in management of water.
- There is a need for a special, well-trained cadre of professionals (IAS) for generating new farmer responsibilities related to water delivery, water use and organization of farmers and to train farmers in these skills.
- Continued farmer involvement is essential for improved operations, water scheduling, *mesqa* improvements and renovations of branch canals.

As a successor to EWUP, the Irrigation Improvement Project (IIP) was added as a component of IMS in 1987. IIP has since evolved organizationally to sector status within MWRI with a number of projects for irrigation improvement assisted by several donors and international lenders. Participatory irrigation management began in a formal way under the IIP. While many lessons have been learned, insufficient monitoring and evaluation were carried out to document the impact. A successor phase of the IIP, funded with assistance from KfW and the World Bank, is being carried out as part of a seven-year program. Proposals are underway, with cooperation from other funding resource agencies, for expanding the IIP development package to other command areas.

Under the APRP program of USAID, policy reforms were achieved during 1997-1999 that further strengthened the process of expanding user participation at secondary levels of the irrigation/drainage system. MWRI promulgated a policy allowing for the formation of secondary-level *Branch Canal Water User Associations*. One of the seminal recommendations from that BCWUA policy was to develop and pilot-test a policy on transferring selected water management and operational functions. The GOE transfer of major management responsibilities for sections of the irrigation system above the *mesqa*-level to stakeholders and/or the private

sector is a bold advance toward the goal of participatory management and privatization of the irrigation system. Although IMT is now a major feature of irrigation delivery in many other countries, the program under discussion is the first attempt to introduce IMT in Egypt. Successful implementation of this benchmark will be a major turning point for this process to take hold at the grass-roots level.

Unlike earlier irrigation improvement efforts in Egypt (e.g. EWUP, ISM, and IIP), which can be classified as “*farmer participation in irrigation improvement*”, the IMT model allows the private sector to take managerial and financial control over operation and maintenance. This will result in direct and immediate reductions in government expenditures, freeing government funds to focus on those tasks the private sector is unable to effectively undertake. In the approximately 30 countries where IMT has been introduced so far, the types of reported impacts include:

- An overall reduction in the cost of irrigation,
- Enhanced financial self-reliance of irrigation schemes,
- Expansion of service areas,
- Greater irrigation water efficiency,
- Higher quality technical services to end-users, and
- Increased cropping intensity and yields.

As a condition of handing over responsibilities, management transfers are often accompanied by physical rehabilitation of the systems. In most countries, service quality improvement and sustainability of such efforts have remained constant or have improved. The incentives for the GOE and farmers to undertake this initiative, therefore, are clear and compelling.

Under IMT models in other countries, private sector entities assume managerial control, but not ownership, over the physical infrastructure and its operations. These management entities normally operate over relatively large areas and can be in the form of water user associations, irrigation districts, water management districts, private irrigation authorities, cooperatives, or shareholder enterprises. They are usually financially autonomous, within parameters established by enabling statutes or decrees, and are able to hire or contract for technical operational and management services. Management transfer can be partial, incremental or total. During Tranche III, a plan for partial transfer through branch canal O&M cost sharing was negotiated with two BCWUAs and the GOE.

Through this IMT policy initiative, MWRI has set in motion a long-term evolutionary process that will allow the GOE to significantly reduce its costs while continuing to expand its coverage and services in other areas. Management transfers that occur in a supportive socio-technical context result in improved quality and efficiency of irrigation water delivery, which in turn will enhance profitability of irrigated agriculture and decrease the cost of irrigation.

Additional innovative strategies of management transfer are also being implemented. These pilot strategies are mandated by the MWRI Policy on IMT and will be supported by the revised water laws.

## 2.2 Objectives and Expected Impact of IMT Policy Reform

The objectives of this benchmark are that:

- GOE formally determines the prerequisites for introducing the hand-over of management responsibilities to stakeholders and/or the private sector, in light of international experience;
- GOE defines the strategies and steps required to implement partial, incremental and total management transfer in all categories of land, including old lands;
- MWRI issues a policy document on transfer of irrigation management responsibilities to the private sector; and
- MWRI establishes two pilot implementation sites to test the IMT policy.

There are many positive examples of management transfer programs in countries as diverse as Mexico, Colombia, India, Nepal, Turkey, Senegal, the United States and Indonesia. A literature review suggests that there are certain principles that tend to exist in successful secondary level user associations in many countries. These include:

- Clearly stated aims and purposes in a charter backed by appropriate legislation and policies;
- Clear incentives for water users who devise their own rules and clear sanctions for those who violate these rules;
- Improved services to water users if they are expected to mobilize financial and other resources for O&M and irrigation improvements;
- Clear roles and responsibilities for water suppliers and users; accountability and transparency of irrigation agencies and Water User Association (WUA) members;
- Time and flexibility so that water users and suppliers can learn to be successful; and
- Monitoring (process documentation) to chronicle the records for future reference.

## 2.3 IMT Experiences from Other Countries

The world's environment and food security are linked to irrigation design and management. The transfer of management of irrigation systems to WUAs is not the ultimate goal of IMT. Rather, the ultimate goal is a higher level of performance of irrigated agriculture through improvement of operations and services. IMT experiences in other countries have shown a considerable improvement in the collection of water charges and, therefore, in the recovery of O&M costs. Some projects claim a substantial increase in irrigated area and/or agricultural yield. In most cases, these projects were performing very poorly before transfer. In these cases transferring management to WUAs may have greatly reduced the anarchy in water distribution or the level of inequity between head and tail-enders. In projects previously managed by irrigation agencies according to well-established engineering rules, the impact of IMT on agricultural productivity and water use is much less evident. In this latter case, the irrigation agencies have transferred their operating practices to the WUAs.

Some improvements in level of service after transfer, such as a reduction of the interval between the time of water demand and time of delivery, have been made through simple changes such as

an improved communication system, computers, and low-cost repairs of the control infrastructure. However, to reach a higher level of performance, more fundamental changes are needed. Outdated design and practices still govern the management of many irrigation systems in both developed and developing countries. Irrigation agencies have been slow to adopt improved design and management for several reasons: aversion of staff to change, lack of incentives, poor understanding of irrigation modernization, and, very often, lack of training in basic hydraulics and hydrology. Opportunities for improving irrigation performance are created by the full transfer of irrigation management responsibilities to WUAs.

Individual farmers have very little leverage to convince irrigation agencies to make the required improvements. Interventions by large, influential farmers often result in short-term solutions that benefit only the individual farmers. WUAs responsible for managing systems serving large areas (5,000 ha to 35,000 ha in Turkey and Mexico) have the financial and managerial ability to make substantial changes. They are able to mobilize enough financial resources for a phased modernization. The new technical and management staff recruited by these associations are often willing to improve the service and the procedures, as they are ultimately accountable to the water users. User associations also have a strong financial interest in the renewing of aging irrigation infrastructure. Simply replacing the existing infrastructure with identical structures is often not the best choice. Careful diagnosis of the system can reveal opportunities to create better and more effective irrigation systems.

By contrast, small associations or water groups responsible for O&M at the tertiary or secondary level have little capability to make major improvements to the system unless members participate in a main canal-level federation. Improved canal control can create significant labor savings to a WUA. The quality and effectiveness of labor are likely to improve as some of the less efficient manual tasks are eliminated. Many projects have staff living next to control structures that are adjusted only occasionally, once a week or less. Canal operators of a U.S. Bureau of Reclamation project estimated that more than half of their time each day was spent driving from site to site, but that they only needed to make adjustments at about 10 percent of the sites visited.

As the era of new water projects is coming to an end in most countries, upgrading existing projects is increasingly important. Most policies and institutional reforms cannot be fully implemented without the right physical environment. Implementing these reforms requires both the users' confidence in the water delivery service and the proper water control to provide that service. Physical and institutional improvements in irrigation are not isolated actions; rather, they support one another. Any strategy for improving performance of the irrigation sector should consider the inter-relationship between the design of user associations and their functions and the plans for a better level of service. Transfer of management of irrigation systems to user associations is not an end in itself but the beginning of a potential water revolution.

## **2.4 IMT Working Group and Steering Committee**

The work of this benchmark is being carried out by the members of the Working Group under the supervision of the Steering Committee and IMT Task Force. The IMT Steering Committee is comprised of MWRI Steering Committee members with additional support provided by the

Chairmen of the Mechanical and Electrical Department and Drainage Authority of MWRI. Several local consultants have assisted the Working Group. Technical input also has been provided by consultants from MWRI experienced in water user participation, ministerial institutional management, and physical/mechanical operations.

This benchmark is being implemented over a two-year period and is divided into two phases. Phase I focused on the following:

- Analyzing IMT experiences in other countries;
- Assessing the impact of the program to develop BCWUAs and Water Boards in Egypt;
- Preparing a clear understanding and consensus view regarding which components of irrigation and drainage are to be included in the Egyptian IMT program;
- Developing the results of these analyses into a set of prioritized directional guidelines and policy for Egypt;
- Identifying an IMT strategy or multiple strategies suitable to the Egyptian context and incorporating this into the IMT policy;
- Considering all approaches and strategies for IMT involving the private sector, especially water users and their organizations in all categories of land (new, old, old-new, groundwater, etc.); and
- Issuing a policy document on IMT with a plan for phased implementation in the selected areas, focusing on the following priority issues:
  - administrative aspects of IMT,
  - harmonizing all relevant GOE laws with the IMT process,
  - assessment of water user interest in, and expectations of, the IMT process,
  - estimate of potential private sector capability in water delivery and O&M,
  - evaluation of irrigation and drainage practices in each study area,
  - feasibility of alternative IMT strategies, including partial vs. complete transfer.
- Conducting a study tour to selected countries with major experiences in IMT, providing useful lessons for Egypt to review conceptual framework, approaches to IMT, and initial results and impact.
- Assessing the legal requirements for formal implementation of management transfer.

Early in the process a high-level ministerial Steering Committee on IMT under the aegis of the EPIQ project Steering Committee was established. The IMT Steering Committee has been given decision-making authority and direct liaison with the Minister's office relative to the importance of future MWRI program and policy decisions. Steering Committee members have participated in a series of activities providing exposure to various international experiences in transferring irrigation management to the private sector, as well as in techniques and methods of institutionalization.

## **2.5 Cooperating Agencies for IMT Policy Reform**

Transfer of water management functions requires a multi-disciplinary approach involving a number of agencies and authorities. The IMT benchmark Steering Committee and Working Group have representation from the following units of MWRI:

- Project Steering Committee and IMT Task Force
- Irrigation Department
  - Irrigation Advisory Service
  - Irrigation Improvement Sector
  - Groundwater Sector
  - Horizontal Expansion & Projects Sector
  - Mechanical & Electrical Department
  - National Water Research Center
  - Water Communications Unit
  - Drainage Authority (EPADP)
  - Water Policy Advisory Unit

In addition, the IMT Working Group maintains regular contact with other agencies and donors also involved in privatization and user management. Among these are:

- American University in Cairo (Desert Development Center),
- Multilateral Donors: UNDP, IFAD, World Bank, IDRC, and
- Bilateral Donors: USAID, JICA, GofNetherlands, KfW, GofItaly

### **3. IMT Policy Development Program Approved by IMT Steering Committee**

The chief benchmark output for the first year was the IMT policy statement and its supporting clauses. In preparing this policy statement MWRI took into consideration performance shortcomings, assessment of stakeholder participation options and capacity, identification of water management units and functions to be transferred, identification of changes to be made in MWRI units, and changes in legislation to support the IMT process.

The IMT policy comprises the following features:

- Objectives and justification of the IMT policy;
- Legal basis for the IMT policy;
- Aspects of the system to be transferred;
- Management functions to be transferred;
- Operational functions to be transferred;
- Types of entities to take over from MWRI;
- Process and method of organizing and formally registering new entities;
- Phased implementation timeframe for pilot-testing new policy, and thenceforth, wider application of policy;
- Responsibilities to be transferred based on an integrated hydraulic command area combining irrigation and drainage functions;
- IMT initiatives should be carried out according to the following land classification priority:
  - old-new lands
  - new lands
  - old lands (especially improved and partially improved command areas)
- It is advised to launch pilot programs simultaneously in more than one land category because it is important to test the IMT model under different water management conditions.
- The IMT Steering Committee defined *stakeholders* as the Irrigation Department, the Egyptian Public Authority for Drainage Projects (EPADP), MED, and WCU, private companies, and all categories of water users.
- The IMT Steering Committee believed the management transfer process should be carried out in two phases:
  1. Phase 1 is an agreement between MWRI, the BCWUAs and the private sector.
  2. Phase 2 would be a direct agreement between the BCWUAs and the private sector.

Phases 1 and 2 above assumed that rehabilitation of the physical infrastructure would be carried out as part of the transfer process, on a negotiated cost-sharing basis, and be monitored by a joint

committee of technical units from the MWRI Irrigation Department, the Drainage Authority, and the Mechanical and Electrical Department.<sup>3</sup>

The private sector and/or user-groups' capability to take on O&M responsibilities has four dimensions: technical and/or physical, organizational, financial, and willingness. Before any field activities were undertaken in the four pilot areas, an IMT Baseline Socio-economic Study was conducted.<sup>4</sup> An assessment was carried out through multiple focus-group meetings at the four designated pilot areas to determine the viability of secondary-level organizations to take on water O&M responsibilities. This assessment dealt with water users' financial capability and willingness dimensions. It is presumed that the technical dimension would be satisfied by technical support and advice from MWRI specialists. The farmers' organizational capability is already evident based on the establishment of a broad network of WUAs through the IIP program, the successful formation of BCWUAs under the APRP project and other projects.

The following points emerged from a number of focus group meetings held with BCWUAs, and are reflected in the process documentation (see Appendix F):

- Generally BCWUAs identify cleaning and weed removal from the branch canal as an activity that farmers could take on immediately, and that the removal of encroachments into the canal could be better handled by the BCWUA.
- BCWUAs feel they can perform these activities at a lower cost than a private company or contractor. In addition to the cost savings from taking over O&M responsibilities, the BCWUA would also benefit in the following ways:
  - Higher quality work,
  - Improved speed and scheduling of maintenance operations.
- Most farmers and engineers believe that gains in farm income due to increased crop productivity are likely to be higher than the savings in O&M costs.
- Farmers expect yields will increase if branch canal O&M activities are coordinated so as not to conflict with satisfying crop water requirements.
- More equity in water distribution could be attained by better coordinating deliveries with needs.
- There is an opportunity for improved environmental conditions and environmental stability in the continuous on-site management that a BCWUA could provide.
- The BCWUA will need technical and financial support from MWRI (Irrigation Department and IAS) during the transition period.

### **3.1 Pilot Site Selection: Summary of Process and Outcome**

The IMT Steering Committee, upon recommendation from the IMT Benchmark Working Group, determined that the following steps should be taken as part of the program preparation for the implementation phase:

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<sup>3</sup> The detailed assessment of the physical infrastructure, designs for improvement based on a negotiated agreement with MWRI and the BCWUAs can be found in Appendix E, accompanied by MWRI tender documents.

<sup>4</sup> cf. Appendix G of this report for the complete IMT Baseline Socio-Economic Study Report.

- It was decided that four pilot IMT areas representing three land categories be selected, instead of two as specified in the MOU. Site selection criteria should focus on the highly problematic areas where improvement of the management system is needed; though problems should not be so complicated that they hinder the transfer process.
- The selected sites should be used as viable demonstration areas for testing IMT policy and should be representative of their land category in terms of position, accessibility, infrastructure, services and facilities; and
- There should be demonstrated willingness and commitment on the part of stakeholders (including farmers, officials, political entities, and People's Assembly representatives) to support and fully participate in the IMT process.

Pilot areas selected according to the above criteria include:

- New Lands: New Shabab in Sharqaiya (high water delivery cost)
- Old Lands: El Nazl area of El Bahr El Sagheer in Mansoura (partially improved tertiary command area); Beni Abeid of Serry Canal, El Minya (improved system under USAID-funded IIP)
- Old-New Lands: South Tahrir in Beheira (opportunity for integrated water resources, surface and ground water)

A Ministerial Decree designating the pilot areas was issued by the MWRI Minister, and later followed by under secretarial-level decrees for detailed implementation and memoranda of understanding. Copies of these decrees can be found in Appendix A.

## 4. Policy on Irrigation Management Transfer

The policy statement on IMT focuses on the major management and operational responsibilities of the irrigation and drainage network sections above the *mesqa*-level. This policy is consistent with, and supportive of, overall GOE objectives toward increasing private sector involvement in all levels of the irrigation and drainage network.

### 4.1 Objectives of the Policy Statement

The IMT policy statement objectives are to:

- Determine the prerequisites for introducing the handover of management responsibilities to stakeholders and/or the private sector in Egypt;
- Define the strategies and steps required to implement partial, incremental and total management transfer in all land categories, including old lands; and
- Consider the role and responsibilities of MWRI in the transfer process.

The formulation of this policy entailed consideration of the following variables:

- IMT experiences in other countries;
- Priority focus on the water users' role in IMT during the initial phase;
- Strengthening the program in Egypt to develop BCWUAs; and
- Harmonizing all relevant GOE laws with the IMT process and objectives.

### 4.2 Policy on Irrigation Management Transfer

The official English translation of the policy statement is provided below.

***In a phased process of application, the MWRI will transfer selected sub-sections of Egypt's irrigation and drainage network to users and/or the private sector acting on behalf of the users.***

The complete policy and the subordinate policy clauses can be found in both Arabic and English translation in Appendix A.

## 5. IMT Phased Implementation Plan

A major feature of the IMT policy is a phased implementation plan that addresses the major issues likely to be encountered. The IMT Working Group implementation plan includes the following elements:

- Legal changes required to support the IMT process, including contracting and assessment capabilities;
- Clear definition of roles and relationships between public and private sector entities as they relate to IMT;
- Clear definition of administrative and financial management systems for O&M;
- Training of staff and development of plans for organizational restructuring;
- Arrangement for provision of support services;
- Development of Branch Canal Water User Associations;
- Upgrading of the physical irrigation/drainage infrastructure as part of the transfer process.

### 5.1 IMT Implementation Plan Activities - Year 2001

During the first year following promulgation of the MWRI IMT policy, a number of major issues are to be addressed, including:

- All legal reforms that support the IMT process should be finalized. The MWRI will review the laws and regulations to determine which might slow progress in the transfer process and need to be amended or changed. The IMT Steering Committee will approve recommendations to the Minister of MWRI.
- The mobilization of political support at all GOE legislative and executive branch levels.
- Support among all stakeholders is to be generated through multiple focus group meetings, workshops and conferences.
- IMT pilot program staging activities: Four pilot areas are to be the focus of the IMT policy testing process. These areas represent a variety of locations and water management environments, socio-economic characteristics, land-holding patterns, and technical issues.
- Branch Canal Water User Associations to be organized by the IAS.
- Stages and categories of transfer to be negotiated for each pilot system, with provision made at all levels including *mesqas*, branch canals, secondary and primary drains, and main canals.
- Training of stakeholders to be incorporated into all planned activity areas, particularly those O&M functions that are to be transferred.
- Consensus agreement on methods of revenue generation, including direct assessment and contracting for works and services.
- Consensus agreement on physical rehabilitation works required as part of transfer process and method of cost-sharing for same.
- Issuance of ministerial decree sanctioning the method of revenue generation for the pilot areas.
- Transfer timetable to be negotiated between BCWUAs and MWRI.

It is expected that the BCWUAs will assume responsibility for carrying out major works and will bear their costs, after having received adequate training and on-site supervision. The Irrigation Department and Drainage Authority will continue to supervise and provide on-going technical assistance as follows:

- Monitoring and Evaluation of IMT process using combined economic, engineering and PRA methods.
- Process Documentation by IAS on the 4 pilot areas.
- Training and capacity building.
- Incorporating accountability and transparency into BCWUA activities.
- Reviewing and refining MWRI IMT policy based on results of the pilot phase first year.

## **5.2 IMT Implementation Beyond Initial Pilot Phase**

The revision to Law 12 on irrigation and drainage provides the legal basis for long-range planning to transfer sections of the irrigation system to users or their representatives. An evaluation of the pilot phase, to be carried out by the end of 2002, will provide direction for IMT process replication and expansion. By 2012, it is expected that several main canals and main drains will be identified for phased transfer. Each branch canal or secondary drain on the main system will be turned over to users in preparation for the transfer at the main level. The IMT Working Group recommends that MWRI prepare a master plan for the transfer of the irrigation and drainage network sections to the year 2025.

## **5.3 IMT Organizational Process Documentation**

Documentation of the irrigation management restructuring process is critical for allowing participants to maintain a history of their local institution, and for service entities such as the Irrigation Department to understand the nature of the organization. *Process Documentation*, therefore, was a major aspect of the IMT pilot work plan. The IAS coordinated the process documentation. The process documentation can be found in four volumes comprising Appendix F of this report.

## **5.4 IMT Under Secretarial Decrees for BCWUAs**

In order to formally certify the legitimacy of the new pilot IMT BCWUA, the governorate Under-Secretary for MWRI will issue a registration certificate. This document, authorized by the ministerial decree, is to be issued to the BCWUA upon submission of its membership charter, list of members, by-laws and plan of action.

## **5.5 IMT Memoranda of Understanding**

A critical milestone in the process of IMT is the official agreement, or Memorandum of Understanding (MOU) between the MWRI and each BCWUA, detailing the plan, procedure and terms of the transfer of responsibilities. In the four pilot IMT areas, MOUs were formulated following protracted negotiations. In each case the terms of the MOU are specific to the

particular operating environment. Copies of the signed MOUs are attached as **Appendix C**.

## **6. Proposed Revisions in Water Law in Support of Irrigation Management Transfer**

MWRI has drafted a revised national water law, amending Law 12 (12/1984 & amendment 213/1994) on irrigation and drainage. The draft is currently under formal review. The IMT Working Group assisted in the revisions in areas directly affecting user participation and management transfer. The relevant sections of the draft law are included in Articles 32, 33, 34 and 35. MWRI will undertake the process of formalizing the legislation before it is officially enacted. The primary distinguishing feature of the revised law lies in its inclusiveness with respect to levels of the irrigation system and types of entities that may be assigned M&O aspects of the irrigation and drainage network. The Articles of the draft revised law are as follows:

### **Article (32):**

The Ministry of Water Resources and Irrigation is authorized to manage and regulate on private intakes and openings, the distribution of water from all sources for all uses. The Ministry may determine or modify the systems of water resource use to fit the purpose of such use. The Ministry also determines the methods to be adopted for water management and distribution and announces such methods by administrative means through local general departments.

### **Article (33):**

The Ministry of Water Resources and Irrigation regulates the method of participation by the farmers and water users and makes available the necessary private and government funding for irrigation and drainage-related construction, replacement, rehabilitation, operation, and maintenance works. The Ministry shall establish corporate water user associations in the old and new lands in respect of private or public irrigation networks and shall establish corporate Water Boards in certain lands of specific geographical borders and public water sources. The Minister of Water Resources and Irrigation, or whomever the Minister may delegate, establishes by decision such water user associations and Water Boards as provided by the Executive Regulation of this Law.

### **Article (34):**

The Ministry of Water Resources and Irrigation may entrust to a specialized company or a certain water user association or Water Board the responsibility of constructing, managing, operating, and maintaining - at the water users' cost - parts of the irrigation and drainage networks; groundwater wells; joint reservoirs and dams; or systems of improved irrigation and tile drainage.

### **Article (35):**

Where an emergency so requires for the public interest, the competent general manager may order at any time -- even during on-periods -- that no water be taken from a public canal(s) or a groundwater well(s) to ensure that the water is fairly distributed or that no excessive water be given or wasted to farmed lands.

The competent general department may take the necessary procedures to prevent the violation of the decisions issued pursuant to the previous paragraph; and may, in particular, prevent by administrative means the passage of water into a *mesqa* or its branches and may obstruct by appropriate method the water lifting.

## **7. Organization of Pilot Branch Canal Water User Associations**

The process used to set up each of the BCWUAs for operation under the IMT pilot program entailed the following common procedures as derived from the MWRI IMT Policy of 2001:

1. Basic information needed to organize and register BCWUAs for IMT was collected:
  - a. Profile of each branch canal
  - b. Other data such as maps, area served, agronomic and water delivery data
2. The branch canal was divided into natural hydrological reaches (i.e. head, middle and tail).
3. Influential persons were identified on each reach for initial entry-point contact.
4. Irrigation district and IAS field teams held several individual and joint meetings with influential farmers on each reach. Field teams held additional meetings with branch canal stakeholders on each.
5. Farmers on each reach nominated representatives to sit on the BCWUA Executive Council.
6. An Executive Council of BCWUA Officers (Chairman, Vice-Chairman, Treasurer and Secretary) were selected from among the Executive Council members.
7. The Governorate MWRI Undersecretary of State issued a decree formalizing the formation and registration of each BCWUA for IMT.

### **7.1 Establishing a BCWUA on Al Azema Canal**

Al Azema canal is one of four canals selected by the MWRI to pilot test the new strategy of IMT. Al Azema canal is supplied by water from Al Tahady canal at km 1.8 on the left side, and its length is 4.8 km. Sprinkler is the dominant irrigation system in the area through a mechanism of eight booster pumps. Each booster pump irrigates an area between 480 and 700 feddans, through four main asbestos pipelines. The system was implemented during the early 1960's and underwent some minor repairs and rehabilitation during the early 1990's. The current irrigation system on the canal comprises seven stations with total area ranging from 425 to 680 feddan.

Initially the canal was divided into three reaches; however, farmers preferred to have two so that the hydraulic division would mirror the two agriculture cooperatives in the area. Therefore, the canal is divided into two hydraulic reaches. The first reach represents Al Azema cooperative and contains stations 10, 11 and 12. The second represents Al Itman cooperative and contains stations 13 - 17.

IAS staff held meetings with key persons in the area to help convey the purpose of establishing WUA on the canal to other farmers. This system proved very successful in delivering the project objective and methodology and saved time and effort.

IAS staff held more than 150 individual meetings and 25 meetings with groups within reaches. Results from meetings with individuals were analyzed, and farmers on each reach with the same interests and problems were grouped together. IAS staff introduced IMT and its strategy to the influential persons and explained ministerial decree 285 of August 8, 2000. IAS staff listened to

problems and potential solutions from water users' perspective. The water users asked about the how they will participate, the role of the executive council of BCWUA and if it has the legal entity, and how to improve coordination between MWRI and other concerned ministries.

The inside reach meetings were instrumental in getting water users together to discuss their role in O&M for the reach and canal. Individual and group meetings revealed some complaints regarding:

- system performance
- deterioration in pump discharge
- missing fittings and accessories in the main pipelines
- complaints from tail users for insufficient delivery
- conflicts among farmers regarding maintenance
- cutting of electricity
- villages through garbage into the canal
- lack of weed and silt control in Al Azema canal

### Election

The reach committee and executive council were elected by the stakeholders. The first reach committee has three members and the second reach committee has five. The two reach committees met together and elected the executive council of the BCWU; then the executive council elected a chairman, vice chairman, and secretary. IAS staff and district engineers attended these meetings.

### The IMT BCWUA establishment decree

The Beheira MWRI Undersecretary issued decree number 5 on January 20, 2001 formalizing the formation and registration of the Al Azema BCWUA.

## **7.2 BCWUA for El Nazl Canal (Dakhaliya Governorate)**

El Nazl canal serves 7,700 feddan and takes water from Al Bahr Al Sagheir canal at 28.80 km on the left side. El Nazl canal is 9.70 km long.

There are four branches: Al Manasher, El Nazl branch, El Badry and Old El Nazl. It has eight bridges and 23 *mesqas*, 17 of which were improved during the Canadian "Integrated Soil and Water Improvement Project". Few of the *mesqas* are still working.

The *mesqas* command areas range from 50 to 300 feddans. Two main drains serve the area: Kafr Qannish and El Hudduda drains. Laterals and collectors for subsurface and drainage were implemented by PVC pipes and buried manholes.

Land-holdings along the canal are very small. Intensive rice cultivation results in additional pressure on the system and water availability.

In forming and strengthening the BCWUAs MWRI and IAS developed the following steps:

1. Collection of basic information.
2. Maps and other data were collected. A map for the whole canal and its branches with scale 1:25000. The map includes a cross section along the canal indicating ownership, a cross section at 5.800 km where the siphon of Bashmor drain intersects with the canal, a longitudinal section for the whole canal, a list of off-takes, a plan and front view for the intake, and models for the bridges along the canal.
3. The canal was divided into two hydrological reaches: the first reach from intake 0.00 km to El Bashmor drain, which intersects with the canal at 5.80 km; the second from 5.80 km to the end. The first reach is called El Nazl reach and the second one is Mansheyat Al Gammal, corresponding to the main villages inside each reach. IAS staff introduced the IMT and its strategy to influential persons and explained ministerial decree 285. IAS staff listened to the water users' problems and proposed solutions. The water users asked about how they will participate and the role and legal status of the executive council.
4. IAS field staff held more than 160 individual meetings at *mesqa* level and 95 group meetings within reaches were held.
5. Both of the reaches elected representatives to the BCWUA. Both reaches have six members in the BCWUA. Some local council members attended these meetings, which were held at the youth center.
6. The election of the Executive Council took place at El Nazl village on November 12, 2000. IAS staff and district engineers attended the meeting.

A focus group workshop was held in Mansoura on Feb. 14, 2001, and the executive council asked for:

- maintenance of the drainage and cleaning of the canal,
- necessary equipment,
- legal status the Association,
- cover over the *mesqas* that go through villages, and
- sources of financial support for the association.

The Dakahliya MWRI Undersecretary issued decree number 15 on January 20, 2001 formalizing the formation and registration of the El Nazl BCWUA. A Memorandum of Understanding was signed between the Dakahliya MWRI Undersecretary and the Chairman of El Nazl BCWUA.

### **7.3 BCWUA for Branch 5 Mollak Canal, New El Shabab Canal, Sharqaiya Governorate**

Basic profile data of the canal was collected from a number of different sources such as the Irrigation Department, the Drainage Authority, field surveys, and meetings with stakeholders. The primary data profile is as follows:

Branch 5 Mollak Serves a command area of 4,710 feddans and is supplied by water from Shabab canal at 10.50 km on the left side. The total length of the branch canal is 8.00 km with 6 stations numbered as 23, 24, 25, 26, 27 and 28. Station number 23 is owned by many individual farmers while other stations are owned by companies (one station per company except numbers 24 and 25, which are owned by the same company).

There are electric pumping units at the intake of Shabab canal, discharging water to RC pipes 15m in diameter. These pipes supply the water to low-lined cross sections that, in turn, distribute water to the main branches. Users lift water from these branches to their fields by pumps. Modern irrigation systems are used in all of the branch stations, including many sprinkler and drip systems. The general soil classification is sandy, and the major crops planted are citrus (with the exception of Ahaly station, No. 23, which has traditional crops under cultivation).

The costs related to establishing developed and undeveloped networks are 2,000 LE/Fed and 2,500 LE/per feddan, respectively. O&M costs, on a per feddan basis, can be briefly summarized as follows:

Electricity	10 LE / month
Manpower	30 LE / month
Annual maintenance	80 LE / month

The existing irrigation and drainage systems in the command area are considered by the stakeholders to be basically in good working order, with the exception of several critical points:

- The intake gate is fully closed at night (6 pm in the summer and 4 pm in winter). When it is opened in the mornings, weeds and garbage are carried by the high speed of the flow and clog the filters of the drip irrigation sets.
- The intake of the canal has been changed to the existing one but the slope of the canal exists as it was before. This leads to some obstruction of the water flow, especially to station number 23.
- A surfeit of weeds and garbage under the bridges crossing the canal often obstructs water flow.
- The high level of water in El Watan drain threatens the agricultural land in the area by flooding over its embankments.

### Canal Division and Introductory Meetings

As an initial step in the organizing process, the branch canal was divided into two hydrological reaches. The first of these reaches includes stations 23, 24, 25, and 26. The second reach includes stations 27 and 28. Key persons who have influence on other farmers were identified in each reach. Staff introduced the IMT concept and its strategy to these key stakeholders, and explained ministerial decree 285 and its implications. During these meetings major issues were covered:

- The manner in which the stakeholders will participate in the process of developing the BCWUA, as well as in the cost recovery and cost-sharing mechanisms required for physical rehabilitation, and recurring expenses related to annual operations and maintenance.
- The role of the Executive Council of the El Mollak BCWUA and the support provided through the legal framework, currently under modification.
- Ways of establishing good coordination between MWRI and other concerned ministries, such as MALR and the Electricity Authority.

### Individual Reach Meetings

The field team held more than 20 individual meetings followed by 6 inside-reach meetings. Farmers with the same interests and problems were categorized in the same groupings within each reach. Meetings inside the reaches helped to consolidate the relationships between farmers with the same interests. It helped considerably to allow each group of stakeholders to discuss their role in O&M of each reach.

### Establishment of Executive Council

A committee representing each reach was elected by the stakeholders. The reach committees then elected the Executive Council using a clustered sample mechanism. The Executive Council held an internal election for the chairman, the secretary, and other posts. The election of the Executive Committee was held on October 22, 2000, using the venue of station number 24. The members of the reach committees managed the election process and field teams, and the district engineers attended this event merely as observers. Four members out of a total of seven reach committees attended the election; two of the absentees were performing Omra in Saudi Arabia, while the third member had an emergency preventing his participation, although a proxy was offered in his stead. This election is considered legal because attendee land ownership exceeded 30% of the branch canal total area, as specified by Law 12 and Law 213. Station 26, Samir El Nagar, has been selected as a permanent location for the association.

### Establishment of the BCWUA

The MWRI Undersecretary for Sharqaiya issued decree Number 30 on Feb. 3, 2001 formalizing the establishment and registration of the BCWUA on El Mollak branch canal. The decree also highlights tasks and responsibilities assigned to the association such as:

- Monitoring and follow-up of irrigation and drainage conditions in the area.
- Proposing suggestions to increase efficiency of irrigation and drainage systems.
- Executing water distribution programs with assistance of IAS and under the supervision of the specified irrigation directorate.
- Planning the maintenance program for irrigation networks and branch drains and collaborate in the execution.
- Supporting WUA establishment on the *mesqa* level.
- Managing financial and administrative affairs.

- Managing problems and conflicts.
- Proposing priorities and setting time schedules for implementation according to budget.
- Follow-up works and reporting to irrigation directorates to deliver these works, and
- Implementing training programs in collaboration with IAS staff.

#### 7.4 BCWUA Beni Ebeid Canal, El Minya

Bani Ebeid canal serves 5,027 feddans and takes water from Serry canal at 12.5 km. The canal is 12.6 km long. There are two down-stream control gates (avio): Garris at 3.87 km and Bakhaty at 10.5 km. The three branches are called Moharam, Nahal and Bakhaty. All the *mesqas* are improved, and each *mesqa* has an elected water user association. The canal has six sub-branches with lengths ranging from 1,400m to 4,300m and a command area from 240 to 860 feddans. The command area and physical system were improved under the IIP in the 1990s, and subsurface tile drainage is widely practiced.

Water Users Associations were formed and are operational at the *mesqa* level. An attempt was made in 1998 to organize a branch canal level federation, although it is not supported under the provisions of Law 213. Maps and other data were collected, including a map of the canal with cross sections indicating ownership, a list of *mesqas* and the area served by each *mesqa*, cooperatives and villages, and irrigation methods.

The canal was divided into three hydrological reaches: the first reach from intake 0.00 km to Garris gate 3.87 km, the second from Garris gate 3.87 km to Bakhaty gate 10.50 km and the third from Bakhaty gate 10.50 km to the end at 12.60 km. Influential persons were identified in each reach. IAS staff introduced IMT and its strategy to these people and explained ministerial decree 285. IAS staff held more than 300 individual meetings at the *mesqa* level and 200 inside-reach meetings. IAS staff started with individual meetings then results of those meetings were analyzed and farmers with the same interests and problems were categorized together as small groups inside the reach. The inside-reach meetings helped to get water users together to discuss their role in O&M of the reach and canal.

Each of the three reaches elected committees of five people including a chairman, vice chairman, secretary, treasurer and member. The three reach committees met together and elected the Executive Council of the BCWUA; then the Executive Council elected a chairman, vice chairman, and secretary. IAS staff and district engineer attended these meetings. The Executive Council asked to have training to discuss in detail its and MWRI's role in Minya. Other major issues pointed out by the assembly included:

- The irrigation and drainage law needs to be modified to give legal status to the Executive Council.
- IAS should provide support to the Executive Council in all areas.
- More discussion is needed to secure financial support for the Association.
- The Executive Council requires assistance to spread environmental awareness messages.

The El Minya MWRI Undersecretary issued decree number 15 on January 21, 2001 formalizing the formation and registration of Beni Ebeid BCWUA for IMT. A Memorandum of Understanding was signed between the El Minya MWRI Undersecretary and the Chairman of the Beni Ebeid BCWUA.

## 8. IMT Public Awareness Campaign

In order for IMT to work properly, there must be a free-flow of information between all participants: farmers, MWRI officials and field staff, the government and other ministries, the press and media, and the general public. Good communications are essential at all stages of the process. A *Public Awareness Campaign* (PAC) has been developed by the IMT Working Group. The PAC includes a comprehensive strategy and a set of communication tools to educate all targeted audiences on how to participate in and support IMT. The purpose of the IMT/PAC is to promote a better understanding of IMT, support the ongoing development of this program, and motivate people to remain continuously involved.

### 8.1 Methodology

The IMT program has short, medium and long-term goals clearly defined in Section V of Report No. 36 (MWRI Policy on Irrigation Management Transfer: Phase I). The IMT/PAC will work in parallel with this phased implementation plan, scheduling educational and informational activities in coordination with those of larger the program. The IMT plan is using the following schedule:

Short-term:	September 2001 - December 2002
Medium-Term	January 2003 – December 2007
Long-term:	January 2008 - December 2022

The process of designing and implementing the IMT/PAC has been divided into three phases. Phase I is *Analysis and Strategy Development*. Phase II is *Design and Production of Program Prototypes*. Phase III is *Implementation, Dissemination and Evaluation*.

In phase I, target audiences were identified along with goals that the program hopes to achieve at each level. Target audiences' perceptions and misperceptions were examined, as well as their attitudes and information deficits. The incentives and disincentives for each group to participate in or support IMT were also identified and categorized. A study was undertaken of the media environment in Egypt. A variety of possible professional and community networks for disseminating information about IMT were discussed. The strategy development follows from this analysis and sets the plan for the IMT/PAC. The strategy defines the communication tools for each of the target audiences, the content, tone and approach, and the modes for disseminating the information.

Following the approval of the strategy for the PAC, design of program material began. In Phase II, the communications tools outlined in the strategy were designed for the *IMT/PAC Pilot Program*. Prototypes of the basic elements for the print program were completed by early September 2001. Print production will also begin during Phase II.

Material production is followed by Phase III: Implementation, Dissemination and Evaluation. Preparation for this final phase of the IMT/PAC in the short-term should begin immediately.

The IMT/PAC cannot succeed without an aggressive and effective dissemination effort. Since there are limitations in terms of staff and budget for the IMT/PAC, the MWRI Communications Unit will have to play a major role, relying on itself, the press and broadcast media and a variety of formal and informal networks to get the information into the hands of the appropriate audiences.

## **8.2 Situation and Opportunity Analysis**

The analysis of the obstacles and opportunities, the informational needs, attitudes and characteristics of the target audiences in Egypt provided the basis for the development of this communications strategy and the design of the IMT/PAC. The analysis resulted in the identification of six target groups of the IMT/PAC -- those audiences whose support and participation are believed to be essential to the success of IMT.

1. Farmers
2. Press and Media
3. Religious Groups
4. MWRI Officials
5. Engaged Public:  
Other Ministries, NGOs, Politicians, Donor Organizations, Industry
6. General Public

Because IMT is new to Egypt, there are enormous information deficits that will require an aggressive effort to fill. Farmers need to be educated on the role IMT will play in securing water sources for them, increasing efficiency, and raising production and profit margins. They will need considerable encouragement to participate. An orchestrated effort will involve schools, mosques, field staff and a number of existing outreach networks. The engaged target groups and the press and media must be given accurate, transparent information and be encouraged to become partners in the program.

The analysis found that misconceptions and reservations about participating in and supporting IMT exist among all target groups. The IMT/PAC will attempt to overcome these obstacles by addressing the groups directly and making an aggressive effort to distribute timely relevant information to all audiences.

## **8.3 The Communications Strategy**

The following are some of the basic principals that should guide the development and implementation of the Public Awareness Campaign

- Build a broad consensus in Egypt in favor of IMT and the efforts of MWRI.
- Emphasize efficiency in water usage, conservation and the positive contribution IMT will make for future security of water availability.
- Be direct, forthright, open and positive in presentation. The credibility of the communication program is one of its primary assets.

- Information should be factual and presented in a neutral tone, with a clear presentation of benefits.
- In as many ways as possible, the IMT/PAC should try to incorporate techniques and strategies used for commercial marketing, without becoming commercial or promotional.
- The IMT/PAC team must develop formal and informal systems for listening to the various audiences. The IMT/PAC should regard collecting information as important as distributing it.

## 8.4 The Pilot Program

The Pilot Program focuses on a set of communications tools, including a logo, a graphic identity program, and a set of brochures that will be used collectively to disseminate information to target audiences. The IMT/PAC and its expansion will benefit from the feedback on and impact of the initial materials. The following items have been designed and produced in low-resolution prototype format, within one design and under an attractive graphic identity system:

- Introductory brochure
- Frequently Asked Questions (FAQ) Brochure
- Farmers' Series FAQ (4)
- Field Staff Guide
- Fact sheets (3)
- Posters (5)
- Sample stickers (2)
- Activity booklet
- Stationery, envelopes and business cards

The printed materials will be used as a foundation for all the other media to insure a level of accuracy and quality control and to reinforce the MWRI's brand awareness. An introductory video will be used as a centerpiece for TV "talk shows" and news programs. It will also serve to set a standard for the quality of information transferred to target audiences at seminars, conferences, focus meetings and information days.

To move forward, produce the materials and organize the activities needed for the short-term, three approaches are being proposed. Each approach relates directly to the amount of participation the MWRI Communications Unit can contribute. One has the IMT/PAC Team created in full cooperation with private sector professionals; the second has partial cooperation; and the third approach has the MWRI Communications Unit implementing the program entirely on its own. The ideal approach would be the first one in which there is a full collaboration between the Communications Unit and private sector professionals in the creation of an IMT/PAC Team. This would involve contracting four full-time staff to take-on the many responsibilities of the IMT/PAC Team.

An efficient IMT/PAC will have increased chances of attracting corporate and industrial sponsorship of future MWRI outreach in the medium and long-term. Achieving good results in the short-term will attract many partners to the effort in later stages.

## 9. IMT Pilot Physical Assessment and Rehabilitation

As an integral part of the management transfer process, MWRI undertook an assessment to review the physical condition of each pilot area irrigation/drainage scheme prior to the transfer of operation and management from MRWI to the private sector entity. In accordance with the implementation requirements of Tranche IV Benchmark C.4 on Irrigation Management Transfer, and the Steering Committee recommendations and directives, the working group established a physical assessment task force.

System rehabilitation is a standard tool used by governments prior to handing over systems to users for O&M. Under the IMT model actual ownership of the systems is retained by the Government, but management, operations and financing are transferred to user control. As evidenced by the signed MOUs (cf. Appendix C) farmers are in agreement to repay the costs as per the provision of the government procedure on cost-recovery stipulated in GOE Law 213/1994. Farmers were involved in all aspects and phases of this physical assessment for the four pilot areas, and this chapter of the final benchmark report reflects their consultative input as well as those of the MWRI officials at the district level.

A three-phase assessment/design process was developed by the IMT benchmark working group:

Phase I	Inspection, Monitoring and Survey
Phase II	Design and Costing
Phase III	Preparation of Bidding Documents and Procedures

The task group was comprised of technical officials from Telemetry, MED, EPADP, Horizontal Expansion and Irrigation Department (Design Unit). The task group carried out a detailed physical systems assessment, conducted a number of focus group meetings with stakeholders (farmers and MWRI staff) and evaluated and considered prerequisites for rehabilitation. The work for this assessment was aided considerably by the Mechanical & Electrical Research Institute of the National Water Research Center. The following summary

### **Al Azeema Branch Canal (Beheira Governorate)**

- Visual and hydraulic tests revealed:
- Deterioration in pump discharge and heads (Q&H).
- Overall efficiency is in the range of 40-60%.
- Deteriorated and/or missing fittings and accessories
- Misuse of the physical hardware, coupled with improper water management and irrigation practices.
- Conflicts between farmers regarding delivery and maintenance.
- Complaints from tail users regarding insufficient delivery to end of system.

- Absence of well organized WUAs, and no training or orientation in improved irrigation system management practices.
- Replacement and/or rehabilitation of the pump units.
- Rehabilitation and maintenance of the main pipelines, especially the fittings and control systems.
- Prepare a negotiated plan to split and/or divide the system infrastructure (i.e. pumps, pipelines and command areas).
- Aggressive maintenance (weed and silt control) of the main branch canal (El-Azima) needs to be carried out.
- Urgent need to establish WUAs on the main (BCWUA) and secondary levels (the branch canal as a whole and the pump pipelines which are equivalent to *mesqas*).
- Need for Irrigation Dept, MED and Water Communications Unit to prepare a brochure or pamphlet for South Tahrir system operation, maintenance and improved irrigation practices for use of the WUAs.
- The objectives are to 1) split and minimize the area served and the length of the pipelines, 2) using smaller new pumps from the local Egyptian market capable of securing the discharge and head requirements, 3) minimize the number of pump users on each sub-unit, and therefore reduce the number and intensity of conflicts between farmers, 4) develop a program for technically appropriate and economically viable O&M of the system, and 5) assure the existing pipeline has a static head of about 80 m, while the new divided pipelines have 50 m of static head.

As a result of the analysis, the MWRI approved a program for installation of new and smaller pumps, dividing areas and pipelines, securing Q&H, less cost for Q&M). Detailed designs and costings are found in Appendix E).

### **El Shabab Pilot Area (Sharqaiya Governorate)**

The El-Mollak No. 5 branch canal of this system has a length of about 8.0 km and a drip irrigation system is served through 5 booster pumps (no. 24 to 28), each pump having four main asbestos pipelines. The system is operated by farmers who have used sound methods of drip irrigation at low pressures. The major systemic issues related to branch canal maintenance (silt and weed control), were water availability with proper discharge and levels during night times and early morning, the water turbidity clogging drippers, and the reverse gradient on the right side of the canal. It was found that improved water management practices are needed to ensure continuous flow with suitable discharge and levels, de-silting and weed control must be regular, high velocity and turbulent flows at intake and upper reaches need to be regulated in order to control water turbidity, dredged earth materials need to be hauled away and embankments strengthened, and dredging of the canal the right side portion of the canal gradient should be implemented. In addition, training on BCWUA and WUA organizing of farmers is needed in order to allow them to take over and run the system properly and efficiently.

### **El Nazl Branch Canal (Dakhalaiya Governorate)**

This branch canal has four sub-branches and 23 *mesqas*. It underwent “improvements” during the implementation of the Government of Canada-assisted Integrated Soil and Water Improvement Project (ISAWFP) during the 1980’s. Improvements consisted of open drains, canals and *mesqas* improvements. Subsurface drainage was also introduced to the area. The analysis showed that the main branch canal is in proper condition and are operating under a rational system (continuous flow was foreseen in the ISAWFP project), five out of six elevated PVC *mesqas* have been abandoned by the farmers, who in turn have resorted to using the old *mesqas*, many valves and outlets need repair or replacement, pumping systems are out of order and have been abandoned, there is a absence of properly formed and viable WUAs, and little or no thought given to how to sustain the systems once they are handed over to the farmers. There appears to have been little or no real farmer organizing of WUAs by the ISAWFP. Hence, the WUAs that were registered are by and large paper organizations only, and quickly fell apart once the civil works were completed. There was no cost recovery built in for the physical works, and in the absence of strong WUAs the water scheduling often meets with internal conflicts and disputes over amounts of water and timing of delivery. Intensive rice cultivation results in additional pressure on the systems and water availability.

Pipelines and other related accessories need to be rehabilitated and/or replaced and modified, routine and optional open system canals and drains and subsurface maintenance should be carried out, priority should be given to the organizing of farmers into strong WUAs using the IIP/IAS approach, and this should be followed by intensive training to the farmers in water management practices, organizational skills, and system O&M.

### **Beni Ebeid Branch Canal (El Minya Governorate)**

The Beni Ebeid canal has six sub-branches with lengths ranging from 1400-4300 m, and command areas from 240-860 feddan. The system comprises 64 *mesqas*, of which 27 are buried pipelines. The command area and physical system were improved under the IIP in the 1990’s, and subsurface tile drainage is widely practiced. Water User Associations were formed, and are functionally operational at the *mesqa* level. An attempt was made in 1998 to organize a branch canal level federation, although it is not supported by the provisions of Law 213. The efforts of this trial federation will form the foundation for organizing a BCWUA. Generally, the irrigation and drainage systems are working well, however, some modest repairs and rehabilitation need to be undertaken to bring the system up to a satisfactory operational standard: 1) dredging and weed control for open canals and drains, 2) subsurface drainage requires maintenance, 3) open canals and drains banks need stabilization and strengthening, 4) introduction of a telemetry system, 5) establishment of a maintenance equipment workshop and small office, and 6) provision of fencing around all of the pumping facilities.

Detailed proposals as well as tendering and contracting documents were be produced for the physical system rehabilitation program, and are approved by the Steering Committee for implementation per procedures in Law 213/1994. This will be followed by intensive farmer training, involvement by farmers in the actual rehabilitation process with the contractors, and finally system turnover to the farmers.

## 10. Review of International Experiences in IMT

The IMT Working Group studied the results of some international IMT experiences in order to best advise MWRI on a strategy appropriate for the Egyptian operating environment. Country experiences were drawn from India, Colombia, Sri Lanka, Mexico, Senegal, Nigeria, Philippines, Nepal, Pakistan, and Indonesia, among others. In addition, study tours to Mexico, USA and Turkey yielded an important set of data that is reflected in this document. Some of the primary questions that were addressed included:

- What are the main strategies for IMT that are being implemented worldwide?
- What are the impacts of IMT strategies?
- How should IMT be organized and implemented to produce successful results?
- What has happened when transfer actually occurred (i.e., when government staff are removed from scheme management and government expenditures for O&M are cut off or reduced significantly);
- What have been the results when transfer occurred at least four or five years before this Benchmark?
- What are the implications of applying a phased process of transfer, beginning with a joint-management stage, followed by gradual introduction of other transfer mechanisms?

Some of the major issues addressed include:

- *The extent to which IMT can reduce government expenditure for O&M.* In most cases, the reductions were considerable, with the qualification that IMT sometimes did not directly cause the reduction but at least generally supported a broader policy of reduction. IMT was part of an overall policy of reducing government expenditure on recurring costs of irrigation in Sri Lanka, Colombia, Mexico, Indonesia and India.
- *Improvements in the quality of irrigation service to farmers.* Generally speaking, IMT did not cause dramatic changes in irrigation intensity or in the adequacy or equity of water distribution during the first three to five years after IMT. There is evidence from two countries that pump irrigation delivery efficiency did improve after IMT. Farmers in all countries reported improvements in communications and responsiveness to their needs by management staff.
- *Improvement of maintenance of water management infrastructure after IMT.* In this area, the results appeared to be linked to the condition of the system at the time it was transferred and to the level of continuing government partnership. This latter point is particularly true for Sri Lanka, Indonesia and for expensive lift schemes in Colombia, where it became apparent that some continuation of government subsidy or a more clear policy about rehabilitation is needed.

- *Higher agricultural productivity after IMT.* In general, where changes did occur, they were not dramatic. It is clear that IMT has not had a detrimental impact on agricultural productivity.
- *Higher economic productivity after IMT.* IMT has not undercut the profitability of irrigated agriculture (which is affected by many factors). Indeed, in the long run, it is likely that IMT can stimulate cost savings and new technologies that can indirectly have a positive effect on the economic productivity of irrigated agriculture. Evidence from the USA, Turkey and Colombia suggests that IMT can facilitate the adoption of new water-saving technologies.
- *Increased costs to farmers for irrigation after IMT.* The results show that farmers do pay more initially. But the cost of irrigation to farmers relative to the gross value of the output of irrigated agriculture declines over time after IMT. This is due to more cost efficient management techniques and an overall increase in economic productivity.

The research results suggest that management transfer by itself can have measurable impacts on management procedures, cost of irrigation to government and farmers, cost efficiency and financial viability of irrigation management and quality of O&M. However, IMT by itself tends to have little direct impact on agricultural and economic productivity, which are more affected by other factors (such as use of inputs, labor constraints and soil and water conditions). In any given case, it may take a much longer time horizon, e.g., 10 to 20 years, to determine impacts of IMT on agricultural and economic productivity.

## 10.1 Lessons for farmers

One of the major impacts seen in all instances was improved communications between farmers and management staff. As a result of better communications, staff became more responsive to farmers and the bureaucratic hassles of arranging water deliveries and making payments of water charges were reduced. In cases where more complete control over irrigation financing was devolved to the farmer organization farmer representatives tended to make a concerted effort to improve the cost efficiency of irrigation management through reductions in staff and other means.

To motivate farmers to invest in the long-term maintenance of their irrigation scheme, strong legal recognition of the water user organization is needed and must include a water right and a contract defining the irrigation service between the agency and farmers.

IMT can provide more flexible management of water and an enhanced capacity of farmers to change their cropping patterns. In order to take full advantage of the opportunities to increase the economic value of irrigated agriculture, farmers will need to concentrate on high-value crops, as well as facilitate group business transactions such as bulk purchasing and cooperative marketing.

## 10.2 Sustainability of Infrastructure

The question of who bears the cost of rehabilitation closely related to recurring maintenance cost. If WUAs think that the system rehabilitation cost will eventually be borne by the government, WUAs may have a tendency to defer maintenance in order to lower the recurring costs. In the absence of data concerning pre-IMT conditions, one has to rely on data relating to the post IMT position. In the case of Colombia, with one exception that has peculiar maintenance problems, schemes show that 11 percent of the infrastructure is dysfunctional. In Sri Lanka, only five percent of all structures were dysfunctional, though 15 percent of the main canal length that was inspected proved dysfunctional, which was relatively high. However, at the distributary level (under WUA control) the defects observed were three to 15 percent. The same exercise carried out in the Indonesian systems showed excellent canal conditions.

The systems represented a wide range of agro-climatic regions having different characteristics, crops and cropping patterns, water distribution patterns, water resource availability and management style. The measurements per unit command show that systems that mostly grow rice with low cropping intensity are found in the low range value. Middle range value is represented by rice with high cropping intensity of 200 percent. High range values are found in orchards, industrial crops and some cereals. Measurements per unit cropped indicate that non-rice producing irrigation systems can be more productive than the rice producing irrigation systems by 100 to 200 percent. The findings per unit of irrigation supply indicate the lowest value for purely rice based systems. Irrigation systems that grow rice during rainy seasons and other crops during the dry season obtain middle range values. The highest value is obtained by systems that grow orchards, cash or industrial crops, and vegetables.

## 10.3 Lessons Learned Thus Far in the IMT Implementation Process

Comprehensive IMT, as opposed to partial IMT, may produce better outcomes on management efficiency, financial viability, and quality of operations and maintenance. The following has been drawn from various international reports, as well as from documents provided during the IMT study tours to Mexico, USA and Turkey. Evidence from case studies suggests that the structure and comprehensiveness of devolution is more important than the process of change itself.

1. Management transfer is often incomplete (partial) because of resistance of line agencies and/or lack of comprehensive strategic planning. However, in the case of Egypt, transfer is scheduled to take place in a phased manner. Governments not fully committed to reform often attempt to transfer *responsibility* but not the full *authority* for management. Where agency staff continues to exercise partial control over water distribution or O&M budgets after transfer, farmer organizations lack the incentives or ability to optimize management for the long term. This can create a false sense of failure about IMT, which can encourage further resistance.
2. When comprehensive elements of IMT are in place, less emphasis will be needed by the government to persuade, motivate and raise the consciousness of farmers to “participate.” Primary emphasis should be placed on introducing the above elements where they do not yet exist. This may require dramatic change at the policy level. However, at the field

level--since these are demanding requirements and great variation often exists among schemes and regions--management transfer should be dealt with as an institutional evolution. Accordingly, it will more often require negotiation and experimentation, rather than imposing rigid short-term requirements to meet quotas.

3. There is often a lack of clarity about whether farmers or the agency will be responsible for rehabilitation after the turnover and under what terms and conditions. It is often assumed that the government will be primarily, if not totally, responsible, thereby encouraging farmers to defer maintenance.
4. Rehabilitation is often done just before the turnover of management. Where this is implemented without meaningful participation and investment by farmers, it can reinforce a perception among farmers that the irrigation system belongs to the government. By contrast, having farmers take the lead in setting priorities for repairs and improvements, while investing a significant amount of their own labor and materials, can be an effective means of changing farmer perceptions about who is and who will be primarily responsible for the system after turnover.
5. Irrigation systems originally designed for management by engineers to maximize their flexibility of operation, may need some design alterations to make the infrastructure more compatible with the management capacities of farmers. For example, adjustable sluice gates can be replaced with fixed proportional division structures or fixed diameter pipe outlets, and gated intakes can be replaced with a fixed-size intake and a flood prevention wall. Such changes may result in less flexibility, but they are more predictable in water distribution and require a lower level of management intensity.
6. IMT often results in a net increase in the cost of agricultural production for farmers. They may be reluctant to take over management of irrigation schemes unless they perceive that they will be able to improve system performance enough so that increases in productivity will more than compensate for increases in the cost of irrigation.
7. After IMT, farmer organizations often seek to replace their lost government subsidies with income from sideline enterprises, such as renting out equipment, selling excess water, bulk purchase or sale of agricultural inputs, marketing services, etc. Some observers view this as a threat to management performance in that it distracts the organization from its primary function of irrigation management. Others see it as a means to increase farmer group support for their organization. In any case, farmer organizations often spontaneously diversify their functions, regardless of outsiders' advice (e.g. in the Philippines, Sri Lanka, Indonesia, China, Colombia and the USA).
8. Farmer organizations rarely raise long-term capital replacement funds. They tend to emphasize cost containment to the point of neglecting preventive maintenance of their infrastructure. Taken together, these two trends constitute an emerging threat to the sustainability of irrigation systems, particularly where the ability of governments to finance rehabilitation in the future is uncertain.

9. Farmers do not always want to maximize their participation in all ways, and for many good reasons. For example, IMT may bring the possibility of future civil liabilities, taxation or financial obligation to rehabilitate the system. Where farmers' opportunity costs are high due to other employment options, they may not want to takeover the direct management tasks of the system.
10. Inculcation of a strong sense of environmental awareness into the BCWUAs is important and should be promoted with the formation of farmer-based management entities at the level of irrigation systems. IMT cannot convey important benefits to farmers if local system-level management problems are being overwhelmed by competition for water and environmental degradation at the resource base. Environmental problems may include salinization, rising sodicity, declining water quality, water-logging, soil erosion and subsequent siltation of irrigation canals, loss of soil water retention capacity due to the elimination of trees and foliage in the catchment area and water-related health problems.

Currently in Egypt, the MWRI provides for the operation and maintenance of the main and secondary canals, while WUAs are responsible for managing the tertiary level of the system. Farmers generally have negligible responsibility for the water upstream from their *mesqa* outlets. The conventional management division in large irrigation systems is that the state takes responsibility for O&M of the head-works such as a dam or river diversion, and the main, secondary, and larger tertiary canals, while farmers are responsible for managing water distribution and maintenance along the lowest level canals.

#### Case studies: Mexico, Nepal, Turkey, Philippines

In some countries, associations of water users enter into contractual agreements with state water agencies for the provision of specific water services. In the case of Mexico, the National Water Commission manages the head-works and main canals, while legally recognized water user associations employ their own technical staff for the management of the secondary and tertiary levels of the canal networks. Farmers pay their associations for the water, and a small portion of that fee is passed on to the National Water Commission for their services. In the Hill regions of Nepal most of the irrigated area is in the hands of local communities who have constructed their own canal systems, generally tapping small stream flows. Similar examples of local, farmer-managed systems can be found in nearly every country where irrigation is important, and the rules and customs of such systems provide a valuable pool of local knowledge that can be tapped in developing new irrigated areas.

During the course of implementing this benchmark the example of Mexico was studied. In the mid 1980s, Mexico was in the throes of a debt crisis, and the government was bankrupt. The large irrigation districts under federal control suffered as maintenance was deferred and the productivity of under-paid, demoralized engineering staff declined. Out of necessity, the government reorganized the state irrigation agency to create the National Water Commission with a mandate to turn over the management of the irrigation districts to associations of users created specially for this purpose.

In 1990, Mexico transferred the first irrigation district to the users. By 1995, more than two-thirds of the country's 3.2 million ha network, divided into 80 irrigation districts, had been transferred to 316 irrigation associations. The transfer program was initially in the most productive irrigation districts, which were best organized and with the most commercially oriented farmers. The most important criterion for selecting districts was the potential of the user organization became financially self-sufficient, with users paying the fees to cover the costs of operations, maintenance, and administration.

What could the government offer the farmers as an incentive to accept higher costs for their irrigation? In fact, there was a carrot as well as a stick. The carrot was management autonomy. The farmers would be free to set their own rules for when to clean the canals, and how to distribute the water. The farmers would hire their own technical staff -- engineers and accountants -- to run their system. The canal would be theirs on a 20-year concession, which is in practice a transfer of ownership. But there was also a potential cost to users. If farmers refused to take over management, the government could offer no assurance that the canal network could be kept in repair. The government in effect threatened to default on its conventional understanding with farmers regarding levels of subsidy in the irrigation sector because it no longer had the financial means to do so. The government, however, also promised and provided technical, organizational, and legal assistance in realizing the transfer.

Many farmers, and particularly the commercially oriented ones, could not accept the risk that the irrigation infrastructure might collapse. They preferred to takeover the management, and are paying much more for their water without the government subsidy, but the reliability and responsiveness of their new management structure is considered to be well worth the price. For users and for government it is a "win-win" situation. Major rehabilitation and physical improvements will continue to be handled by the state, although the associations can determine what is done within their areas.

In Turkey, the legal framework had long permitted transfer of management from the government to farmers but only after the government adopted new policies in 1993 were there enough incentives to encourage farmers to request transfer. One new policy, for example, was that farmers who agreed to form an association to manage the system were excused from paying irrigation fees to the government. These incentives, plus an accompanying publicity campaign, were enough to stimulate the process. Local government leaders encouraged and assisted farmers to establish new irrigation associations.

In the Philippines, once the policy decision was taken towards a participatory approach, a complicated process was followed involving many different kinds of training. Irrigation agency staff had to be trained to consult with farmers and work through local leaders; the farmers had to be encouraged and helped to create associations that would assume management responsibilities previously handled by the agency; and a new cadre of social organizers was recruited and trained to help farmers organize themselves into legally recognized associations.

## 11. Capacity Building To Implement IMT

Generating popular support for IMT in Egypt requires identifying and addressing the various stakeholders of irrigation systems. Those with a “stake” in the irrigation sector are not confined to agency staff and farmers, but include other agencies, NGOs, local government, the business community, politicians, journalists, researchers, donors, and the general public. Each stakeholder, if aware of the issues and the logic of IMT becomes a potential supporter of IMT policies. IMT training programs and public awareness campaigns need to target the full range of stakeholders. Some media, such as TV broadcasts, can reach nearly all stakeholders simultaneously; a video documentary or drama depicting IMT is one approach. For many stakeholders, particularly BCWUA members, targeted workshops or seminars will be most effective. In almost all cases, stakeholder workshops, focus group meetings, and seminars for different kinds of farmers will offer a fruitful way to listen and respond to the interests of the ultimate beneficiaries.

An essential element in the process is to make certain that clear incentives to both farmers and agency staff are put in place. For the latter groups, these can be negative incentives (Mexico: support the program or be fired) or positive incentives (Turkey: support the program and be re-assigned from O&M to construction). A strong legal framework is important, but not necessarily a pre-condition for transfer. Old laws may be adequate (as in Turkey), or new laws can be worked on even as transfer is taking place (as in Mexico). In Egypt, the laws are presently undergoing revision and a process of harmonization, which will allow for considerable flexibility as the IMT efforts move forward.

Beneficial impacts of IMT in other countries were discussed above. Some of the problems experienced by other countries also provide illustrative lessons. In some cases, the newly created user organizations suffer from financial shortfalls, insecure water rights, competition from urban/industrial use, and need for rehabilitation and improvement of the infrastructure. The Egypt MWRI program on IMT recognizes these shortfalls and has incorporated measures to safeguard against their undermining the IMT potential. There is a continuing need for technical assistance and management expertise, both in the form of specific support services and training. On the service provider side, there is often a loss of technical capacity due to downsizing, and a general loss of morale is also a danger. MWRI will need to take into account personnel retrenchment in the context of alternative employment schemes, particularly involving the private sector.

Part of capacity building requires a serious commitment to participation at all stages of project planning, design, and implementation. This commitment should drive the process, with intensive inputs of staff time and extensive partnerships with local groups who may represent or can communicate with the users who are the prospective managers of the irrigation infrastructure. When farmers are directly involved in the design process, whether for new systems or rehabilitation of old ones, they will provide useful design input and they will come away with an understanding of the design logic of the system they will be managing. During construction, BCWUA (i.e. farmer) input has the functions of quality control (ensuring design standards are

met), cost savings (guarding against needless spending, and substituting some costs with farmers' own labor), and construction knowledge. Knowing how the system is constructed will help in repairs later on. The advantage of farmer inputs into O&M, either as direct managers or as the overseers of technical managers, is a central feature of the MWRI policy on IMT. Capacity building for participatory irrigation management needs to be a central feature of irrigation investments and integrally linked to the physical components of the project. Similarly the technologies employed should be manageable by the farmers. The MWRI staff and the BCWUA officers need new skills and understandings before the management divide can migrate upstream. Training needs to precede and parallel project investments.

The BCWUAs and Water Boards that farmers establish constitute a form of social capital that can have spin-off effects in other aspects of social and economic life. The network of contacts among agency staff and the water user organization leadership, for example, can bring the farming community into closer touch with related services, such as credit, educational opportunities, or even political access. And the skills that farmers learn through their experience with their water user organization -- accounting, budgeting, planning, organizing -- that can be used in many other productive endeavors. To help foster this objective, the MWRI is proposing to establish a Water Development Fund and hopes to secure collaborative support from major donors, including USAID.

### **11.1 A Model Stakeholder Training Curriculum Plan**

The training to BCWUA stakeholders is a very important part of the process of building strong farmer-based institutions capable of taking over management responsibilities. Training to these stakeholders has been designed for three sessions in order:

- To illustrate to the BCWUA members the methods of administering and operating a branch canal level association of users,
- To formulate *Operation Plan* and a *Maintenance Plan* for the BCWUA based on participatory approach, and
- To discuss and plan for increased participation by all categories of water users in water management and water quality control, with special attention to the MWRI/USAID Tranche IV benchmark on *Irrigation Management Transfer* to the private sector, and development of Branch Canal Water User Associations.

The BCWUA officers, all of whom are private sector stakeholders, will for the most part be hearing for the first time the information to be imparted to the participants during the course of the training sessions.

The major output from this training will be an innovative Operation Plan and a complementary Maintenance Plan for each BCWUA. Training design and method will focus on the following agenda:

## **Training Tranche I (Main Objectives, Administrative and Financial Management)**

### **Day 1:**

- Opening and Introduction. Objectives of Training.
- MWRI Policy Concerning Irrigation Management Transfer
- Role of MWRI and BCWUAs management transfer process
- Structure and responsibilities of BCWUA executive council
- Developing internal rules and by-laws for each BCWUA: process and practice
- Open Discussion & Summary of the Day

### **Day 2:**

- Methods for Conducting Successful BCWUA Meetings and Work Sessions
- Techniques of Internal Communications and Establishing and Sustaining Communications Linkages with other major GOE and NGO entities.
- Methods of Conflict Resolution: Case Examples on IMT
- Group Work: What Are Specific Problems That Can Be Solved through Farmers' Participation in the BCWUA?
- Reporting Methods
- Open Discussion & Summary of the Day

### **Day 3:**

- Methods of Record Keeping
- Methods for Mobilization of Stakeholder Contribution and Collection of Fees
- Procedures for Establishing Bank Account
- Procedure for Preparing Financial Reports for Members & MWRI
- Open Discussion & Summary of the Day
- Summary, Evaluation & Winding Up of Training Tranche I

## **Training Tranche II (System Maintenance Planning and Execution)**

### **Day 1:**

- Introduction to System Maintenance
- Maintenance Problem Identification: Stakeholders Using PRA-type Methods
- Methods of Weed Growth Control: Manual and Mechanical
- Branch Canal Maintenance: Cleaning, Bank Fortification and Maintenance, & Structural Maintenance
- Group Role Play on Maintenance Planning

### **Day 2:**

- Pumping Device Maintenance: Routine, Exceptional and Extraordinary
- Case Examples of Different Classifications and Capacities of Pumping Units
- Group Role Play in Planning for Pumping Unit Maintenance
- Open Discussion & Summary of the Day

### **Day 3:**

- Field Trip to Pump Manufacturing Plant. Demonstration of Operating techniques and Continued Discussion of Techniques for Maintenance.

**Day 4:**

- Techniques for Development of a Maintenance Plan
- Group Discussions and Sessions for Site Specific Annual Maintenance Plan
- Presentation of Plans and Open Discussion / Summary of the Day
- Summary, Evaluation and Winding Up of Training Tranche II

**Training Tranche III (Planning for Operations)**

**Day 1:**

- Introduction to Concepts of Operational Requisites
- Basic Water Management Problems and Techniques
- Identifying Main Players in Operations: Irrigation System, Drainage System, Irrigation & drainage Directorates, & Farmers
- Role of Farmers in Improving Water Management
- Open Discussion & Summary of the Day

**Day 2:**

- Technical, Agricultural & Organizational Benefits from Implementing Improved Water Management
- Water Management: Partnership Between Farmers and Government
- Water Pollution Control – Key Issues and Methods
- Methods of Water Allocation and Distribution
- Factors Affecting Water Availability
- Options for Water Distribution and Supply
- Open Discussion & Summary of the Day

**Day 3:**

- Water Scheduling Methods
- Water Scheduling Monitoring and Reporting Methods
- How to Develop an Operational Plan for the Branch Canal
- Work Group Discussions to Develop Site-Specific Operational Plan
- Group Presentations
- Final Training Summary & Training Evaluation

**Training Methodology:**

- ✓ Analysis of Study Tour Observations and Lessons Learned
- ✓ Working Group Discussions
- ✓ Lecture/Discussion
- ✓ Technical Field Trip
- ✓ Field Demonstrations

## 12. Proposed IMT Institutional Arrangements in MWRI

The members of the IMT Working Group envision IMT as a permanent entity within MWRI. Factors were considered taking into account bureaucratic and administrative aspects, financial obligations, organizing of water users into branch canal-level associations, logistics, capacity for physical improvements and strong political support necessary to push the IMT objectives forward.

The majority of opinions reflect a view that IMT should not be under the purview of any one department within MWRI, but should be under the overall guidance, direction and oversight of a Steering Committee reporting to the Minister, and with implementation coordinated and implemented through the Irrigation Advisory Service. This would guarantee absence of institutional overlaps and duplications, conflicts in administration and budget, and continuous coordination and advising a broad-based from the Minister's Office.

<u>IMT Location</u>	<u>Justification and Comments</u>
1. Under Minister's Office	<b>a. To provide physical coordination and linkages between ID, EPADP &amp; MED</b> <b>b. Extend IMT activities to more areas over time</b> <b>c. M&amp;E of IMT performance/impact</b> <b>d. Plan nation-wide replication of IMT</b>
2. Under Minister's Office	<b>A separate IMT Department under Minister's Office</b>
3. Under Minister's Office	<b>IMT Unit in Minister's Office to ensure proper coordination and resource utilization. Also, to minimize political interference in IMT process.</b>
4. Under the IAS Central Directorate	<b>IAS already responsible for farmer participation at <i>mesqa</i> level.</b>
5. Under the Minister's Office	<b>To work under the proposed Privatization Unit under the office of the Minister, with cooperation of MED, IAS, ID, and EPADP.</b>
6. Under the Minister's Office	<b>A separate IMT Cell in the Minister's Office to minimize administrative conflicts with ID, EPADP, MED, Planning Sector, IAS, and HEPS. If Irrigation and Drainage are combined in the future under one Authority or Department, IMT could be there.</b>
7. Under the IAS Central Directorate	<b>Supported by high-ranking Steering Committee</b>
8. Under the Minister's Office	<b>As part of the proposed Privatization Unit, with participation of MED, EPADP, and ID.</b>
9. Under the Minister's Office	<b>One member of present IMT Working Group nominated to head the IMT Unit.</b>
10. Under the Minister's Office	<b>To coordinate and facilitate all future IMT activities between different authorities, sectors, and even departments of the Ministry, to avoid bureaucratic conflicts. With a high-level Steering Committee under the Chairmanship of HE, the Minister.</b>

It is recommended that IMT be situated institutionally in the Office of the Minister, with consideration given to having the active guidance of HE, the Minister and highest-ranking

officials of MWRI. In terms of practical implementation, it is sensible to utilize the existing resources in MWRI: the Water Policy Steering Committee, and the Irrigation Advisory Service. It is recommended that an IMT Liaison Officer be situated in each of the key departments of the MWRI in order to provide the coordination and communication linkages necessary for the IAS to carry out this role. The Office of the Minister would provide the overall policy and legislative support needed and would serve as a technical backstopping forum.

### 13. Recommendations for the Future of IMT

The following are recommendations made for the future enhancement and sustainability of the IMT process initiated during Tranche IV.

- Having drafted and approved the revision, MWRI will formalize the amendment to Law 12 on water management with the concerned GOE authorities and legislative bodies, in order to 1) formalize transfer of parts of the system to users and/or the private sector, and 2) allow formation and registration of WUAs in all categories of land and among primary, secondary and tertiary levels of the irrigation system.
- It is recommended that IMT be situated institutionally in the Office of the Minister, with consideration given to having the active guidance of HE, the Minister and highest-ranking officials of MWRI. In terms of practical implementation, MWRI should utilize the existing institutional resources in MWRI: the Water Policy Steering Committee that will report directly to the Minister, and the Irrigation Advisory Service.
- MWRI will expand its pilot program in line with the approved phased implementation schedule plan approved in this report.
- MWRI should continue to support and strengthen the role of the inter-disciplinary ministerial IMT Working Group under the direction of the IMT Steering Committee, that reports to the Minister. This may be achieved by issuance of a ministerial decree.
- MWRI will formally take necessary action to incorporate *mesqa*-level and branch canal irrigation and drainage functions as part of the mandate for the management transfer entities.
- As part of its support to the IMT program, the MWRI should formally undertake establishment, with BCWUA cooperation, of maintenance centers for spare parts, equipment and other O&M material used in irrigation and drainage at the branch canal level.
- In conjunction with the objectives of the MWRI plan for Integrated Water Management Districts, BCWUAs and field engineers will jointly plan, design and implement branch and distributary canal improvements in the command area and establish continuous flow and downstream water level control.
- A branch canal O&M cost-sharing plan process (as described in the Tranche III APRP

Water Policy Report No. 17 on Establishment of Branch Canal Water User Associations) should continue to be refined and adopted as a standard feature of the BCWUA management transfer implementation process.

- Coordination should be maintained with all other projects working in this sector, e.g. the Irrigation Improvement Project, the Water Boards Project, etc.
- Awareness-building programs for BCWUAs and MWRI engineers, technicians and field agents need to focus on priority IMT objectives and issues.
- MWRI staff will need basic introductory training on IMT as well as periodic refresher training in a number of key subjects.
- To ensure quality and minimize duplication of services following management transfer, local level coordination with other public and private sector agencies needs to be formalized, e.g. with Agricultural Extension, Drainage Authority, cooperatives, banks, growers' associations, local councils, research institutes, etc.
- Management transfer (IMT) should not be restricted to irrigation activities only; transfer should be implemented in a holistic modality and extend to all water resources (irrigation, drainage, groundwater, etc).
- With respect to expansion of IMT beyond the pilot stage, MWRI should examine the improvement projects and the rehabilitation works needed in these areas and how to differentiate between improvement and rehabilitation.
- A major Public Awareness Campaign needs to be launched specifically for the IMT effort. MWRI will need to fund and manage the implementation of the PAC. The strategy and details of such a campaign are included as Annex H.
- MWRI must establish an IMT Monitoring and Evaluation System, which will be particularly important at the time of IMT expansion. The MES will serve three primary functions: 1) track implementation efforts for problems and bottlenecks, 2) confirm and verify progress and achievements, and 3) provide the basis for assessing post-facto beneficiary impact. A draft Terms of Reference for developing the MES is included in this report.
- MWRI will need to study alternative methods of financing expansion of the IMT pilot program nationwide, including public/private co-financing, establishment of a Water Partnership Fund, and government loan mechanisms to bring MWRI, private sector entities and NGOs together in a cooperative effort to expand IMT.
- MWRI will need to evaluate the various pilot programs dealing with management

transfer and establishment of WUAs to define a policy for such efforts, including institutionalizing implementation under one unit within MWRI to build upon the successes achieved to date, to expand these programs nationally and to ensure sustainability.

## **APPENDICES**

### **APPENDIX A: MWRI POLICY ON IRRIGATION MANAGEMENT TRANSFER (DECEMBER 2000) AND MWRI DECREES:**

- 1. OFFICE OF THE MINISTER MWRI**
- 2. MWRI UNDERSECRETARY, BEHEIRA**
- 3. MWRI UNDERSECRETARY, DAKHALAIYA**
- 4. MWRI UNDERSECRETARY, SHARKAIYA**
- 5. MWRI UNDERSECRETARY, EL MINYA**
- 6. EXECUTIVE ORDER dated November 29, 2001: Authorization & Approval to Proceed, by MWRI Minister for Rehabilitation of Four Pilot IMT Branch Canals**

### **APPENDIX B: PHASED IMPLEMENTATION PLAN FOR IRRIGATION MANAGEMENT TRANSFER (ARABIC)**

### **APPENDIX C: IMT MEMORANDA OF UNDERSTANDING (ARABIC AND ENGLISH)**

- 1. MWRI UNDERSECRETARY, BEHEIRA**
- 2. MWRI UNDERSECRETARY, DAKHALAIYA**
- 3. MWRI UNDERSECRETARY, SHARKAIYA**
- 4. MWRI UNDERSECRETARY, EL MINYA**

### **APPENDIX D: DRAFT TERMS OF REFERENCE FOR ESTABLISHING IMT MONITORING & EVALUATION SYSTEM (MES) IN MWRI**

**THE FOLLOWING APPENDICES ARE LOCATED IN SEPARATELY BOUND VOLUMES OF THIS REPORT:**

### **APPENDIX E: IMT PHYSICAL ASSESSMENT FOR REHABILITATION (VOLS. 1-4)**

### **APPENDIX F: IMT BCWUA PROCESS DOCUMENTATION REPORTS (VOLS. 1-4)**

### **APPENDIX G: IMT SOCIO-ECONOMIC BASELINE STUDY**

### **APPENDIX H: IMT PUBLIC AWARENESS CAMPAIGN**

## **Appendix A: MWRI Policy on Irrigation Management Transfer**

- 1. English language translation of MWRI Policy on IMT**
- 2. Official MWRI Policy, dated November 2000, in Arabic**
- 3. MWRI Executive Order dated November 29, 2001, in Arabic**  
(This order authorizes and instructs the Chairpersons of Irrigation, MED & Drainage, to proceed with rehabilitation work on the four pilot IMT branch canals, in accordance with the detailed budgets and specifications found in Appendix E).

## Appendix A: MWRI Policy on Irrigation Management Transfer

*(The official Arabic language MWRI version follows this English translation)*

***In a phased process of application, the MWRI will transfer selected sub-sections of Egypt's irrigation and drainage network to users and/or the private sector acting on behalf of the users.***

- IMT Policy Clause 1. Under this policy IMT is in an evolving state, in that dynamics and features of the policy will not change, although implementation strategies and impacts may be reviewed and considered at regular intervals.
- IMT Policy Clause 2. The IMT policy is applicable in all categories of land in Egypt.
- IMT Policy Clause 3. MWRI may maintain a permanent IMT Task Force, to advise and assist in the implementation and monitoring of the IMT policy.
- IMT Policy Clause 4. To effect a transfer, MWRI and the transfer entity will enter into an agreement. The agreement will detail the conditions of transfer, functions and responsibilities are to be transferred, and timetable for implementation.
- IMT Policy Clause 5. Under the IMT policy model, private sector entities will take over managerial control over the physical infrastructure and its operations. Ownership of the physical infrastructure of the system will remain with the Government.
- IMT Policy Clause 6. Transfer of operations and maintenance will be made to user-based institutions operating at the secondary level, e.g. branch canal water user associations or their representative bodies, private irrigation companies, registered cooperatives, or registered shareholder enterprises. It is expected that such institutions would be financially autonomous, within parameters established by enabling statutes or decrees, and able to hire or contract for technical operational and management services.
- IMT Policy Clause 7. Management transfer can be partial, incremental or total, and will be determined on a case-by-case basis in the process of negotiation. Relevant factors to be weighed include, 1) size of command area and discharge, 2) technical complexity of the sub-system, 3) technical and managerial capabilities of the users, and 4) current and projected resource base of the local institutions. Management transfer in future phases of the process may focus on larger areas or higher levels in the water resources network.
- IMT Policy Clause 8. An IMT strategy for special development areas, e.g. El Salaam Canal, Bostan, Toshka, etc., may be identified as these areas become populated and irrigated agriculture is initiated.
- IMT Policy Clause 9. As a prerequisite to entering into the agreement, MWRI and the transfer entity will assess the condition and performance criteria of the physical system to determine what modifications/improvements are required to upgrade the system to an acceptable technical level. The agreement will specify the nature of the work to be carried out, the timeframe, and the method for financing the work.

- IMT Policy Clause 10. MWRI, in consultation with stakeholders, including local authorities, will assess socio-economic criteria to determine if a user association is ready to assume O&M responsibilities.
- IMT Policy Clause 11. Reclaimed lands and areas improved under the IIP may be given priority for IMT implementation during the early stages, as strategies are perfected for application in old lands.
- IMT Policy Clause 12. As part of the evolutionary policy on IMT, the IIP and EPADP tertiary programs should be harmonized into a single developmental package for simultaneous implementation.
- IMT Policy Clause 13. The agreement between MWRI and the transfer entity will identify the roles that the MWRI technical units and their staff will assume in relation to the transfer entity. These include technical, supervisory, monitoring, and legal enforcement functions.
- IMT Policy Clause 14. The revised Law on Water Resources and its by-laws, when finally approved, will support the IMT process. Until such time as the new law is officially enacted, the undersecretary of state in each governorate will officially sanction a ministerial decree for the formation of the pilot branch canal water user associations.
- IMT Policy Clause 15. The Irrigation Advisory Service (IAS), under the MWRI Irrigation Department, will have primary responsibility for the organization and preparation of the transfer entities involved in the transfer process. The organizing process follows the MWRI policy on BCWUAs, established June 1999.
- IMT Policy Clause 16. The IAS will apply an eight-step BCWUA strategy for IMT, to include the following:
  1. Collection of basic information needed to organize and register BCWUAs for IMT:
    - Profile of each branch canal
    - Data collection (e.g. maps, area served, agronomic and water delivery data)
  2. The branch canal will be divided into natural hydrological reaches (i.e. head, middle and tail).
  3. Influential persons will be identified on each reach for initial entry-point contact.
  4. Irrigation district and IAS field teams will hold several individual and joint meetings with influential farmers on each reach. Field teams will hold additional meetings with branch canal stakeholders on each.
  5. Election of reach committee: farmers on each reach will nominate representatives to sit on the BCWUA Executive Council.
  6. Establishment and convening of Executive Council of Branch Canal Water User Association. Officers (Chairman, Vice-Chairman, Treasurer and Secretary) will be selected from among the Executive Council members.
  7. Governorate MWRI Undersecretary of State issues a decree formalizing the formation and registration of Branch Canal Water User Association for IMT.
  8. BCWUA will establish and equip an on-site office.
- IMT Policy Clause 17. As part of the organizing process the IAS will train the stakeholders in managerial, administrative, fiscal, and technical aspects of the transfer process and operation of the system.
- IMT Policy Clause 18. Overall BCWUA role and responsibilities in the IMT process:

1. As part of the irrigation management transfer process the Executive Council will assume operational and managerial control over the BCWUA, inclusive of planning, monitoring, fiscal management and implementation. Additionally, the EC liaises with other major stakeholders in the process, including the District Engineer, the IAS and other critical units of MWRI, (including EPADP and MED).
2. Monitoring irrigation and drainage performance and requirements and the water level in the area served by the branch canal.
3. Regularly preparing observations and recommendations on branch canal issues for joint review with MWRI officials.
4. Scheduling and water deliveries between branch canals and *mesqas*.
5. Regularly conducting and overseeing branch canal maintenance work for pitching, weeding and embankments and gates, as well as leveling and compacting of embankment pads.
6. Assuming major responsibility for the establishment and strengthening of *mesqa*-level Water Users Associations.
7. Managing BCWUA internal finances, including determining fee assessment, and internal administration.
8. Interfacing with public sector authorities, e.g. Irrigation Department, MALR, EPADP, District Council, etc., regarding problems that arise on the branch canal.
9. Assisting farmers on the branch canal with seasonal crop plans; collecting cropping plans for each *mesqa*; and reviewing with Irrigation Department and MALR.
10. Following up on the cropping plan implementation and reporting back to the irrigation or drainage authority directorate.

*IMT Policy Clause 19.* To formally attest to the legitimacy of the new Branch Canal Water User Association, the governorate MWRI Under-Secretary will issue a registration certificate on behalf of the Minister by ministerial decree for the BCWUA upon submission of its membership charter, list, by-laws, and plan of action. Copies of the MWRI under-secretarial decrees for the pilot IMT canals will be annexed to the IMT agreement.

*IMT Policy Clause 20.* The MWRI will provide adequate resources to the Water Communication Unit and the IAS to spearhead stakeholder training in principles and aspects of implementation of IMT. This training may include short courses, development of awareness materials for literate and semi-literate audiences, and wider mass media applications.

## **Appendix B: Phased Implementation Plan for Irrigation Management Transfer to Year 2022**

- 1. English Language Translation of IMT Plan**
- 2. Official Arabic Language IMT Implementation Plan**

## **IMT Phased Implementation Plan (English Language Translation)**

A major feature of the IMT policy preparation process is a phased implementation plan that addresses the major issues likely to be encountered. The IMT Working Group implementation plan includes the following elements:

- Legal changes required to support the IMT process, including contracting and assessment capabilities;
- Clear definition of roles and relationships between public and private sector entities as they relate to IMT;
- Clear definition of administrative and financial management systems for O&M;
- Training of staff, and development of plans for organizational restructuring;
- Arrangement for provision of support services;
- Development of Branch Canal Water User Associations;
- Upgrading of the physical irrigation/drainage infrastructure as part of the transfer process.

### **IMT Implementation Plan Activities - Year 2001**

During the first year following promulgation of the MWRI IMT policy, a number of major issues are to be addressed, including:

- All legal reforms, which will support the IMT process should be finalized. The MWRI will review the laws and regulations to determine which might mitigate progress in the transfer process, and can be amended or changed. The IMT Steering Committee will approve recommendations to the Minister of MWRI.
- The mobilization of political support at all GOE legislative and executive branch levels.
- Support among all stakeholders is to be generated through multiple focus group meetings, workshops and conferences.
- IMT pilot program staging activities:
- Four pilot areas are to be the focus of the IMT policy testing process. These areas represent a variety of locations, operating and water management environments, socio-economic characteristics, land-holding patterns, and technical issues.
- Branch Canal Water User Associations to be organized by the IAS
- Stages and categories of transfer to be negotiated for each pilot system, with provision made at all levels, including *mesqas*, branch canals, secondary and primary drains, and main canals,
- Training of stakeholders to be incorporated into all planned activity areas, particularly those O&M functions which are to be transferred,
- Consensus agreement on methods of revenue generation, including direct assessment, and contracting for works and services,
- Consensus agreement on physical rehabilitation works required as part of transfer process, and method of cost-sharing for same,

- Issuance of ministerial decree sanctioning the method of revenue generation for the pilot areas,
- Transfer timetable to negotiated among BCWUAs and MWRI
- Major responsibilities to be transferred to the users at the branch canal level include:

Maintenance:	Weed removal	100% user liability
	Bridge & minor structure repair	100% user liability
	Routine canal cleaning	100% user liability
	Maintenance of tile drains	100% user liability
Operations:	Water distribution	100% user liability
	Operation of control structures, flow measuring devices, & network & equipment maintenance	100% user liability

It is expected that the BCWUAs will assume responsibility for carrying out major works and bearing their costs, after having received adequate training and on-site supervision. The Irrigation Department and Drainage Authority would continue to supervise and provide on-going technical assistance, in accordance with the revised law:

- Monitoring and Evaluation of IMT process using combined economic, engineering and PRA methods.
- Process Documentation by IAS on the 4 pilot areas.
- Training and capacity building.
- Incorporate accountability and transparency into BCWUAs activities.
- Review and refine MWRI IMT policy, based on results of the pilot phase first year.

### **IMT Implementation Beyond Initial Pilot Phase**

The revision to Law 12 will provide the legal basis for long-range planning to transfer sections of the irrigation system to users or their representatives. An evaluation of the pilot phase, to be carried out by the end of 2002, will provide direction for IMT process replication and expansion. By 2012, it is expected that several main canals and main drains will be identified for phased transfer. Each branch canal or secondary drain on the main system will be turned over to users in preparation for the transfer at the main level. The IMT Working Group recommends that MWRI prepare a master plan for the transfer of the irrigation and drainage network sections to the year 2025.

### **IMT Implementation Plan Phases**

#### Phase I (end of 2000)

- Legal reforms Supporting the IMT process.
- Formulation of IMT policy.
- Mobilize political support as legislative and executive levels
- Consensus among stakeholders through multiple focus group meetings workshops and conferences.

#### Phase II (ending 2001)

- Four pilot areas to be focus of IMT policy testing process, representing a variety of operating management environments.
- Contracting procedures between MWRI and private sector to be formulated .To include detailed description of stakeholders' role.
- Training of stakeholders, particularly regarding O&M and organizational management.
- Process documentation by IAS in pilot areas.
- Review and refine IMT policy, based on results of the pilot phase.

#### Phase III (ending 2002)

- Consensus agreement on methods of revenue generation, including direct assessment and contracting for works and services
- Pilot area replication and extension
- Major responsibilities to be transferred to the users at the branch canal level focus on O&M.

#### Phase IV (5 Years ending of 2007)

- Issuance of ministerial degree sanctioning the method of revenue generation for the pilot areas and negotiations of transfer time table
- Capacity building: BCWUAs take charge after having received adequate training and on-site supervision MWRI to supervise and provide on-going TA.
- Monitoring and Evaluation of IMT process using combined economic, engineering and PRA methods.
- Pilot developed for federation of BCWUAs.
- IIP and EPADP sub-surface drainage amalgamated into one program at water district or public canal level.
- Policy/program evaluation and refinement

#### Phase V (5 Years ending (2012)

- By 2012 IMT to have been implemented at the public canal level (moderate size). Each branch canal or secondary drain on the public canal system will be turned over to users in preparation for the public canal level.
- Continuous M&E. Impact assessment.

#### Phase VI (post-2022)

- Consolidation of federation into district command areas

#### Phase VII (Post-2022)

- Main canals and drains transferred to private management  
Implementation of IMT at regional level (e.g. East Delta, West Delta, etc.)

## **Appendix C: IMT Memoranda of Understanding (*Letters of Agreement Between MWRI and BCWUAs*)**

**This Appendix C contains an English language translation of the standard MOU and the technical annexures for each of the four pilot BCWUAs. This translation is followed by signed copies of the MOUs between MWRI and the 4 pilot IMT BCWUAs.**

**A. Memorandum of Understanding (English translation)**

**B. Copies of MOU Technical Annexures (English translation)**

**C. Copies of signed MOUs:**

- 1. MOU MWRI & Beheira Pilot IMT BCWUA**
- 2. MOU MWRI & Dakhalaiya Pilot IMT BCWUA**
- 3. MOU MWRI & Sharkaiya Pilot IMT BCWUA**
- 4. MOU MWRI & El Minya Pilot IMT BCWUA**

## **STANDARD SAMPLE PRO FORMA**

***AGREEMENT AND MEMORANDUM OF UNDERSTANDING***  
**BETWEEN**  
**THE MINISTRY OF WATER RESOURCES AND IRRIGATION (MWRI)**  
**AND**  
**THE IRRIGATION AND DRAINAGE SYSTEM BENEFICIARY ASSOCIATION**  
**(BCWUA) ON \_\_\_\_\_ CANAL,**  
**\_\_\_\_\_ DISTRICT, \_\_\_\_\_ GOVERNORATE**

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### **1. FIRST – INTRODUCTION**

In the context of fulfilling the objectives of improving water management systems in agricultural land, optimizing uses and returns of both land and water, promoting capacities and activities of regional and local organizations, boosting decentralized systems and promoting the participatory role of stakeholders and farmers in achieving social and economic development, it was agreed by both Parties of this Agreement, in the light of irrigation, drainage and water protection laws and statutes, to set up necessary transactions for satisfying these objectives on the grounds of both Parties' will and understanding to enhance the above mentioned courses of action.

### **2. SECOND – AGREEMENT PARTIES**

- 1- Pertinent organizations of the Ministry of Water Resources and Irrigation (MWRI), represented in this Agreement by Mr. \_\_\_\_\_, Head of the Central Directorate for Water Resources and Irrigation in \_\_\_\_\_ Governorate (First Party).
- 2- The Irrigation and Drainage System Beneficiary Association (BCWUA) in \_\_\_\_\_ Region, on \_\_\_\_\_ Canal, serving an approximate area of \_\_\_\_\_ Feddans, represented in this Agreement by Mr. \_\_\_\_\_, Head of the IDBSA established according to the decree of the Head of the Central Directorate for Water Resources and Irrigation (HCDWI) No. ( \_\_\_\_\_ ), dated \_\_\_\_ / \_\_\_\_ / 2001 (Second party).

### **3. THIRD – DEFINITIONS**

- 1- Organizations of the Ministry of Water Resources and Irrigation (MWRI)  
This means central and regional authorities concerned with development and management of irrigation and drainage systems according to the responsibilities and

activities determined by organizational Decrees, Laws of irrigation, drainage and water protection No. 12/1984, No. 213/1994 and No. 48/1982, the Presidential Decree No. 653/1980 issued for organizing the Ministry of Irrigation (now Ministry of Water Resources and Irrigation) and the Ministerial Decree No. 285/2000 for transferring some parts of the irrigation and drainage systems and networks to stakeholders and private organizations.

2- The Irrigation and Drainage System Beneficiary Association (BCWUA)

This means the association responsible for managing, operating and maintaining irrigation and drainage systems, for which the HCDWI decree is issued regarding the formation of the board and definition of responsibilities with respect to management and maintenance of irrigation and drainage systems.

3- Irrigation and Drainage Systems (IDS)

This means the channels, networks, stations and devices of irrigation and drainage as set in this Agreement and according to the above mentioned HCDWI decree.

4- Management of Irrigation and Drainage Systems

This means carrying out works that imply managing and maintaining means of water conveyance, distribution and drainage, as well as operating water channels and devices (open or buried water courses, stations, lifting pumps, etc.), in the context of ensuring efficient management and equitable distribution through necessary works, missions and resources.

5- Water Resources

This means irrigation and drainage water as well as other types of water resources (surface, underground, mixed, etc.).

#### **4. FOURTH – JOINT MANAGEMENT**

- Parties of this Agreement will closely cooperate during a determined and agreed upon period, which lasts for \_\_\_\_\_ months (ending in \_\_\_\_ / \_\_\_\_ / 2001), to prepare, manage and maintain IDS and train BCWUA members through promoting their skills and knowledge to efficiently manage IDS and soundly use and conserve water.
- For this purpose, the MWRI is in charge of studying, preparing and implementing necessary works, under its administration or through a third party (contractor, cooperative or private sector), so that the BCWUA can subsequently take over the responsibility of efficiently managing, operating and maintaining IDS.

#### **5. FIFTH – TRANSFERRING THE MANAGEMENT OF IDS TO THE BCWUA**

- Upon completion of the period and activities specified in FOURTH, the MWRI will transfer the responsibilities of managing and maintaining IDS – without transferring the property of public infrastructure – to the BCWUA, to which the authority of managing, operating and maintaining the integrated irrigation and drainage network, downstream of the intake of the branch channel that feeds the field systems until the end of field networks, will be totally delegated. These tasks will be carried out through the BCWUA's organizations and resources and according to the BCWUA's bylaws and resources to be prepared and made available for this purpose by the BCWUA under the general supervision of the relevant MWRI organization.

## **6. SIXTH – RIGHTS AND DUTIES**

### **1- Of the MWRI Organizations**

#### **1-1 During the Phase of Joint Management**

- Study and evaluate conditions and status of the irrigation and drainage networks and devices.
- Carry out, under the MWRI administration or through a third party (contractor), necessary maintenance and promotion of irrigation and drainage networks and devices, in addition to necessary training for BCWUA organizations on management, operation and maintenance methods.
- Undertake system administration according to laws and statutes through a close cooperation with the BCWUA.
- Assist the BCWUA with the formulation of the association's bylaws and basic structure.

#### **1-2 During the Phase of Post-Network Management and Maintenance Transfer to the BCWUA**

- Provide the BCWUA with technical support, advice and consultation.
- Enforce laws and statutes in the case of necessity.
- Monitor the fulfillment of tasks assigned to the BCWUA.
- Secure adequate water discharges and levels downstream of the intake of the branch channel that feeds field systems according to discharge programs and schedules.
- Assist the BCWUA, whenever possible, with the local and international enhancement of the association's efforts and resources.

## 2- Of the BCWUA

### 2-1 During the Phase of Joint Management

- Prepare the association's bylaws for ratification by the relevant authority.
- Declare the establishment of the association and carry out registration requirements according to rules.
- Form the necessary technical and administrative organizations, set management and maintenance plans and arrange the acquisition of necessary resources in this regard.
- Cooperate with organizations belonging to the MWRI and those recruited by the Ministry for promoting the network.
- Acquire necessary training and skills for sound management, distribution and conservation of water.

### 2-2 During the Phase of Post-Network Management and Maintenance Transfer to the BCWUA

- Locate and furnish the association headquarters and determine the responsibilities of the board.
- Apply all the rules and criteria included in the association's bylaws.
- Achieve the requirements for a sound management of IDS and secure necessary means and resources in this regard.
- Quantitatively and qualitatively safeguard water, cooperate with the MWRI with respect to the enforcement of water management laws and statutes and seek advice and consultation if necessary.

## **7. SEVENTH – MISCELLANEOUS AND FINAL DECLARATIONS**

- 1- All basic and national public infrastructure will remain the property of the MWRI.
- 2- The BCWUA will abide by the rules of the laws and statutes of irrigation, drainage and water protection as well as those implying the application of administrative, technical and financial systems.
- 3- The MWRI will enforce the irrigation and drainage laws and statutes with respect to illegalities from the part of individuals, stakeholders or the BCWUA itself.
- 4- If the BCWUA fails in carrying out its duties and responsibilities, it is up to the MWRI to withdraw the BCWUA license, abolish all authority delegation to the BCWUA and undertake necessary actions, under the MWRI administration or through a third party, to protect the irrigation and drainage infrastructure and farmer rights and to establish another organization, as conceived by the MWRI. In all cases, the BCWUA will be liable for any illegality, responsibility or

commitment towards others according to the laws and statutes that control its work.

- 5- The MWRI will incur the maintenance and improvement costs of the branch water channel during the phase of joint management.
- 6- The BCWUA will incur the maintenance, improvement and replacement costs of any of the private irrigation and drainage networks and devices under its responsibility. Payment will be made in one or more installments according to the laws No. 12/1984 and No. 213/1994 and their executive statutes and according to what is agreed upon between both Parties in this regard.
  - Also the BCWUA will be in charge of managing, maintaining and operating the other private and branch irrigation and drainage infrastructure after the system management has been transferred, i.e. during the post-joint management period.
- 7- The BCWUA will prepare the necessary records and reports according to systems and statutes. The BCWUA will have to provide the MWRI with periodical reports regarding the IDS conditions under its management.
- 8- The MWRI commitment will be to provide the BCWUA with technical and institutional support and consultation through a close cooperation to ensure efficient task accomplishment.
- 9- Annex (1) of this Agreement determines the general framework, work plan, tasks and responsibilities that are necessary for implementing this Agreement.
- 10- The introduction in FIRST, the items in SECOND down to SEVENTH and Appendix (1) are basic and integral parts of this Agreement. The Agreement will be in force unless it is terminated by the MWRI for any of the above mentioned reasons. The Agreement may be improved or modified on the grounds of the understanding and approval of both Parties or in the case of legal or administrative necessities.

Two originals of this Agreement were signed by both Parties on \_\_\_\_\_, the \_\_\_\_\_ of \_\_\_\_\_, 2001.

**FIRST PARTY**

**SECOND PARTY**

**ANNEX 1**  
***(English Translation)***  
**GENERAL FRAMEWORK OF THE WORK PLAN FOR MAINTAINING AND  
IMPROVING EL AZEEMA BRANCH CANAL IRRIGATION SYSTEM**

**FIRST – Improvement Works for Beneficiaries’ Field Infrastructure during the  
Phase of Joint Management**

- 1 - Supply and install new pumping units for the two left-side pipelines (north direction) on the basis of dividing each pipeline into two sections, in addition to the necessary shelters, devices and division pipeline (PVC or asbestos if possible).
- 2 - Supply and install a new pumping unit (replacement) for each of the half-pipeline on the right bank, make use of existing shelters and keep the actual conditions of pumping stations and improvement pipelines (on the last part of the pipeline).
- 3 - The beneficiaries will incur replacement, refurbishment and improvement costs for intakes, pipelines, shelters, etc., as a percentage of properties and according to relevant irrigation and drainage laws and statutes (Article 16 of Ministerial Decree No. 14900/1995 regarding the executive statutes of the Irrigation and Drainage Law No. 213/1994 and Article 32 of the Law No. 12).

**SECOND – Maintenance and Improvement of the Branch Channel (Azeema Branch) that Feeds the System Mentioned in FIRST during the Phase of Joint Management**

- 1 - Study the conditions and efficiency of El Azeema Branch and determine necessary requirements for maintenance and improvement.
- 2 - Implement works and requirements of crucial and urgent maintenance for El Azeema Branch during the phase of joint management.
- 3 - The MWRI will incur costs of the above defined works in 1- and 2-

**THIRD – Time Schedule**

- Without contradicting what was previously mentioned in FIRST and in other locations in this Agreement, it is intended to carry out maintenance and improvement works during the phase of joint management, which is estimated to last for one and a half years starting from the date of signing this Agreement.
- The BCWUA will be fully in charge of the management and maintenance of El Azeema Canal system as well as of other systems including pumping stations, pipelines and other devices, according to what was previously mentioned in 2-2 of this Agreement and Memorandum of Understanding regarding the transfer of the network management and maintenance to the BCWUA.

**FIRST PARTY**

**SECOND PARTY**

**ANNEX 1**  
*(English Translation)*

**PROGRAM AND WORK PLAN FOR MAINTAINING AND IMPROVING  
IRRIGATION SYSTEMS ON BRANCH/5 EL MOLLAK - EL SHABAB  
REGION**

**FIRST – Maintenance and Improvement of Branch/5 El Mollak that Feeds the  
Boosters during the Phase of Joint Management**

- 1 - Dredge and modify the surface slope of the right part between the intake and Station No. 23.
- 2 - Dredge and maintain the left part from the intake down to Station No. 28.
- 3 - Weed control for the whole length of Branch/5 (between Station 23 and 28), especially in summer.
- 4 - Remove occupancies and obstacles under bridges, aqueducts and station intakes.
- 5 - Disallow piling on canal banks and maintain critical locations.
- 6 - Study and take necessary actions to achieve the above mentioned works (item 1- to 5-) through funds and efforts provided by the relevant irrigation administration during a maximum period of nine months starting from the date of signing this Agreement.

**SECOND – Other Activities and Responsibilities**

- 1 - Establish cooperation channels between the BCWUA and irrigation organizations to secure, according to actual water requirements, a suitable discharge throughout the day from El Shabab Canal intakes, for the purpose of achieving workable water levels upstream of the stations and avoiding the concentrated sediment loads contained in largely discharged water during morning periods.
- 2 - The BCWUA will secure its headquarters and recruit its technical and administrative staff to be, starting from the date of the system management transfer, in charge of the system operation and maintenance downstream of El Shabab Canal intake until the end of the network.
- 3 - Ensure the sustainability of coordination and exchange of information between the BCWUA and the MWRI for the sake of promoting performance efficiency, law application and water conservation (quantitatively and qualitatively).

**FIRST PARTY**

**SECOND PARTY**

**ANNEX 1**  
**(English Translation)**

**PROGRAM AND WORK PLAN FOR MAINTAINING IRRIGATION AND  
DRAINAGE SYSTEMS ON BENI EBEID CANAL FED FROM SERRI CANAL  
(KM 12,000)  
ABOU KORKAS DISTRICT / EL MINIA GOVERNORATE**

**FIRST – Maintenance of Field Systems during the Phase of Joint Management**

- 1 - Review conditions and status of open and pressurized *mesqas* and carry out necessary and critical maintenance.
- 2 - Review conditions and status of field drainage networks (laterals and collectors) and carry out critical and periodical maintenance.

**SECOND – Review and Maintenance Works for Branch (Public) Canals and Drains during the Phase of Joint Management**

- 1 - Weed control in Beni Ebeid Canal and its branches as well as in Garrees Drain. Review conditions and critical requirements of relevant water structures (intakes, tail escapes, barrages, etc.).
- 2 - Carry out necessary maintenance for banks and slopes.

**THIRD – Other Programs and Activities**

- 1 - Study the possibility of safeguarding pumps by placing fences around their locations.
- 2 - Study the possibility of assisting the BCWUA by locating a temporary base (e.g. wooden kiosk) for technicians working for the BCWUA and for the local irrigation and drainage administration, which will also serve for storing instruments and spare parts.
- 3 - Ensure a continuous flow of water according to preset discharges and levels downstream of Beni Ebeid Canal intake.
- 4 - Apply irrigation and drainage laws and statutes and determine the responsibilities of different parties regarding maintenance and improvement works and costs during the phase of joint management.
- 5 - Ensure the provision of necessary training and knowledge to the BCWUA, and assist the association with the preparation of its bylaws.
- 6 - It is intended to achieve the above mentioned maintenance works and hand the IDS over to the BCWUA to be in charge of the management, operation and maintenance after the phase of joint management, specifically during a period of nine months from the date of signing this Agreement.

**FIRST PARTY**

**SECOND PARTY**

**ANNEX (1)**  
***(English Translation)***

**PROGRAM AND WORK PLAN FOR MAINTAINING AND IMPROVING  
IRRIGATION AND DRAINAGE SYSTEM: EL NAZL BRANCH CANAL(KM 28,000)  
LEFT OF EL BAHR EL SAGHEER MINYET EL NASR DISTRICT / DAKAHLIA**

**FIRST – Maintenance or Improvement during the Phase of Joint Management**

- 1 - Study and prepare rehabilitation requirements for the five pipeline *mesqas* that are actually out of service (No. 1, 2, 7, 8/b and 12/c) in order to bring them under efficient operation. The rehabilitation process targets the following elements:
  - Intakes and lifting pumps.
  - Balancing reservoirs.
  - Pipelines and relevant instruments.
- 2 - Review the field drainage network (laterals, collectors, escapes) and carry out necessary maintenance.
- 3 - Review conditions of the other eighteen open *mesqas*.

**SECOND – Review the Maintenance of El Nazl Canal and its Branches that Feed Field Mesqas and Public Drains during the Phase of Joint Management:**

- 1 - Weed control works and maintenance of canal and drain banks.
- 2 - Review conditions of water structures (intakes, escapes, barrages, bridges, aqueducts, siphons, etc.) and carry out necessary maintenance.
- 3 - Study the conditions and systems that would allow suitable water discharges and levels downstream of El Nazl Canal intake for the sake of sound water conveyance and distribution among *mesqas*.
- 4 - Study branch conditions: the reaches that will not be needed and the way of handling their cases according to laws and rules.

**THIRD – Other Programs and Responsibilities:**

- 1 - It is intended to achieve the tasks previously mentioned in FIRST and SECOND within one year starting from the date of signing this Agreement by both Parties.
- 2 - Based on the objectives and responsibilities of the Land and Water Improvement Project (ISAWIP) and in the light of irrigation and drainage laws and statutes, the rehabilitation and maintenance of works belonging to the MWRI will be carried out by the Ministry and at its expense.
- 3 - The BCWUA will set a headquarters and prepare bylaws with the consultation and assistance of relevant MWRI organizations.
- 4 - The BCWUA will take responsibility of managing, operating and maintaining IDS downstream of El Nazl Canal intake to the end of irrigation and drainage field networks.

**FIRST PARTY**

**SECOND PARTY**

**APPENDIX D:**  
**Draft Terms of Reference for IMT Monitoring and Evaluation  
System (MES)**

## **APPENDIX D: Draft Terms of Reference for IMT Monitoring and Evaluation System (MES)**

The purpose of this draft TORs is to develop a comprehensive monitoring and evaluation system (M&E), to support the IMT program. The purpose of the M&E system is to allow the MWRI to efficiently track program activities, to mitigate problem areas and bottlenecks, and to periodically assess program impact. As the IMT program is expanded in future years to additional command areas and to higher levels of the irrigation system, the ability of the MWRI to monitor the activities will become critical to achieving overall success. During 2000/01, EPIQ carried out a Socio-Economic Study in the four IMT pilot command areas. The generated data and findings of the Socio-Economic study will provide the baseline for assessing overall IMT program impacts.

An effective IMT Monitoring and Evaluation system is particularly crucial as the program is based on a new GOE policy, and all future activities beyond the pilot phase will be predicated on the achievements and perceived success by both farming communities and government agencies.

### **SCOPE OF WORK**

In order to effectively develop the MES, the services of a team technical specialists is required: 1) Institutional Development Specialist (Team Leader), 2) Agricultural Economist, 3) Mechanical Engineer, 4) Irrigation/Drainage Engineer, and 5) Computer Programmer. The specialists will:

1. In consultation with the IMT Working Group, prepare a detailed plan of action for designing an M&E system, that will encompass standard procedures of assessing system impact, and participatory rural appraisal (PRA) techniques involving the impacted communities in generating required socio-economic and production data. Other key areas for the M&E system include cost/quality of system operations, and cost/quality of system maintenance.
2. Refer to 2000/01 IMT Socio-Economic Study for identification of indicators to be monitored and assessed. Develop a schedule of institutional, economic, social, environmental and agricultural, and system performance indicators that will be the basis of the M&E system. Formulate the methodological tools to be used for gathering information and analyzing each of the indicators, including identification of an appropriate computer package. The entire M&E system will be developed in Arabic, in order to facilitate high levels of active participation by BCWUAs and MWRI field staff.
3. Pre-test the monitoring instruments in the IMT pilot areas prior to completion of assignment.

4. Prepare an operational manual and guideline for application of the M&E system, which will be carried out by staff of MWRI. The manual and guidelines are to be prepared in Arabic, with a summary in English.
5. Attend regularly scheduled coordination meetings of the IMT Working Group and participate in necessary field trips during the period of assignment.

Specific tasks for the MES are indicated below:

- Review all MWRI/EPIQ documents and reports related to farmer participation and irrigation management transfer in Egypt.
- Design and develop a Monitoring and Evaluation detailed plan of action, to include the following major issues regarding changes in the following main areas:
  - 1) household income patterns,
  - 2) agricultural production,
  - 3) social indicators (e.g. education, gender issues, etc.),
  - 4) costs and changes in quality of irrigation/drainage system maintenance, and
  - 5) costs and changes in quality of irrigation/drainage system operations.
- Develop an M&E program and apply methods for data collection, posting and analysis that are specific to the needs of IMT. This methodology will incorporate participation of beneficiaries in the collection of data using standard PRA techniques, and focus on following main issues:

A. IMT implementation *process*:

1. Monitor roles of MWRI and BCWUAs performing IMT implementation
2. Levels of BCWUA institutional performance
3. Levels of new water management fees and how they are being collected, accounted for, and utilized?
4. Process for rehabilitation/improvement in water management infrastructure; involvement of BCWUAs in process.
5. Changes in social environment of BCWUAs
6. Roles of MWRI central and field units

B. IMT *Outcomes and Impacts*:

1. Potential *Outcomes*: a) support for BCWUA leaders; b) popular awareness and support for BCWUA policies and decisions; c) water management service fees and collection rates; d) financial viability of BCWUAs; e) quality of water delivery service (including efficiency, reliability and equity); f) frequency of water disputes; g) level of investment in maintenance; h) functional condition of irrigation/drainage infrastructure; i) cost recovery.

2. Probable Eventual *Impacts*: a) land under cultivation/irrigated command; b) sustainability of area irrigated/drained; c) farm income; d) crop yields; f) cropping intensity; g) on-farm and off-farm employment; h) farm income and agricultural labor wages; i) reduction of poverty; j) waterlogging and salinity in irrigable areas.

- Develop and select M&E indicators based on identified institutional outcome and production impact issues.
- Develop method for presenting and utilizing M&E results.
- Field test and subsequently re-tool the M&E instruments developed.
- Prepare an Operational Manual and Guideline for the M&E system.

## **DELIVERABLES**

1. An initial report detailing the IMT Monitoring and Evaluation detailed plan of action, showing breakdown of task assignments among M&E task members.
2. A Final Report, which will include:
  1. The IMT M&E Program (using a standard computer programming package, incorporating beneficiary participation in process). To include detailed list of M&E indicators based on identified institutional outcome, infrastructure performance, and production impact issues.
  2. Results of Pre-Testing of M&E data collection instruments
  3. IMT M&E Operational Manual and Guideline
  4. Recommendations

## **LEVEL OF EFFORT**

Services in five technical areas are required in order to comprehensively address the TORs: 1) institutional development, 2) agricultural economics, 3) irrigation & drainage engineering, and 4) mechanical engineering, and 5) computer programming, will be required. Native command of Arabic, and professional level of English are necessary for this scope of work. This activity will require a total of 80 person days divided among five technical areas:

1) Institutional Development	-	30 days of LOE
2) Agricultural Economics	-	20 days of LOE
2) Mechanical Engineering	-	10 days of LOE
3) Irrigation/Drainage Engineering	-	10 days of LOE
4) Computer Programming Specialist	-	10 days of LOE

*Ministry of Water Resources and  
Irrigation  
US Agency for International  
Development  
Agricultural Policy Reform Program  
Environmental Policy and Institutional  
Strengthening Indefinite Quantity  
Contract*

**APRP — Water Policy Activity  
Contract PCE-I-00-96-00002-00  
Task Order 807**

**irrigation management transfer:  
A socio-economic baseline study**

**Study Team:**

*Dr. Mohamed M. Mohieddin, Coordinator Consultant*

*&*

*Dr. Robert Cardinalli (Sr. Sociologist, & IMT Task Manager)*

*Mr. Adrian Hutchens (Sr. Economist)*

*Dr. El Sayeed Mahdi (Economist)*

***Report No.47  
Appendix No.***

***Note:*** *This baseline study was conducted prior to the start of field activities in the pilot areas and before any discussions with stakeholders regarding IMT.*

**July 2001**

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**Water Policy Program**

**International Resources Group**

**Winrock International**

**Nile Consultants**

***Report No. 47***

***Appendix No.***

***IRRIGATION MANAGEMENT TRANSFER:  
A SOCIO-ECONOMIC BASELINE STUDY***

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in the pilot areas and before any discussions with stakeholders  
regarding formation of water user associations or the proposed IMT  
procedures and objectives.*

July 2001

For  
United States Agency for International Development/Egypt

Environmental Policy and Institutional Strengthening Indefinite Quantity Contract (EPIQ)

*Partners:* International Resources Group, Winrock International,  
and Harvard Institute for International Development

*Subcontractors:* PADCO; Management Systems International; and Development Alternatives, Inc.

*Collaborating Institutions:* Center for Naval Analysis Corporation; Conservation International; KNB Engineering  
and Applied Sciences, Inc.; Keller-Bliesner Engineering; Resource Management International, Inc.;  
Tellus Institute; Urban Institute; and World Resources Institute

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*The EPIQ Water Policy Reform Program (WRRP) is a joint activity of the Ministry of Water Resources and Irrigation (MWRI) and the United States Agency for International Development (USAID). It is carried out under the auspices of the Agricultural Policy Reform Program. Program implementation is the responsibility of Winrock International, International Resources Group, Ltd., and Nile Consultants.*

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*MWRI Policy on Irrigation Management*

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## ***LIST OF ACRONYMS & ABBREVIATIONS***

<i>APRP</i>	<i>Agricultural Policy Reform Program</i>
<i>BCWUA</i>	<i>branch canal water user association</i>
<i>EPIQ</i>	<i>Environmental Policy Indefinite Quantity</i>
<i>EWUP</i>	<i>Egypt Water Use Project</i>
<i>GOE</i>	<i>Government of Egypt</i>
<i>IAS</i>	<i>Irrigation Advisory Service</i>
<i>IIP</i>	<i>Irrigation Improvement Project</i>
<i>IMT</i>	<i>irrigation management transfer</i>
<i>ISM</i>	<i>Irrigation Systems Management Project</i>
<i>mesqa</i>	<i>on-farm tertiary field canal</i>
<i>MOU</i>	<i>memorandum of understanding</i>
<i>MWRI</i>	<i>Ministry of Water Resources and Irrigation</i>
<i>O&amp;M</i>	<i>operations and maintenance</i>
<i>PIM</i>	<i>participatory irrigation management</i>
<i>PRA</i>	<i>participatory rural appraisal</i>
<i>USAID</i>	<i>United States Agency for International Development</i>
<i>WPAU</i>	<i>Water Policy Advisory Unit</i>
<i>WPRP</i>	<i>Water Resources Results Package</i>
<i>WUA</i>	<i>WATER USER ASSOCIATION</i>

## **14. Introduction**

*For several millennia, Egypt has been primarily a hydraulic-agriculture based country. The Nile River has been the main provider of the water resources, in the absence of significant rainfall or groundwater development. In recent decades, the national water resources have come under increasing pressure. Among the nine riparian countries that are serviced by the Nile, Egypt's fixed share of Nile water, at 55 billion cubic meters a year, must meet the rising demands of a population that is rapidly growing and urbanizing. Moreover, the liberalization of the economy, and particularly the agricultural sector, has made it more difficult to predict water demand on the part of farmers.*

*Historically, the state has assumed the responsibility of water delivery down to the level of the branch canal, and retained control of management and distribution at the mesqa level to the farmers. Consequently, earlier irrigation-improvement projects, such as EWUP, ISM, and IIP, focused exclusively on increasing farmers' participation in irrigation improvement at the mesqa level. However, increasing financial burdens on the state are being increasingly felt at all levels of the government infrastructure.*

*Based on considerable experience in other countries, where irrigation management transfer has successfully given farmers a larger role in water delivery, it is believed that a similar effort will affect positively on irrigated agriculture in Egypt. This IMT modality affords farmers and the private sector the opportunity to assume managerial and financial control of operation and maintenance of the irrigation system beyond the mesqa level. This, it is assumed, will lead to significant reductions in direct and indirect costs to the government. Furthermore, it is believed that the new model of management transfer will lead to improved service quality, greater water-use efficiency, and an increase in crop production, among other benefits, as reported by countries with similar socio-economic and hydraulic agriculture conditions to those of Egypt.*

*The purpose of this report is to describe, analyze, and explain farmers' agriculture behavior and provide a baseline data source, which can be used to assess levels of program impact.*

*This report, has attempted to describe, analyze and explain the attitudes of the water users with reference to irrigation transfer project. As has been noted, the subject of IMT had not been introduced to any of the areas prior to the collection of interview data. Therefore, the views expressed in this report do not reflect any level of understanding of the IMT concepts, objectives and procedures. The major conclusion of this report is that, without proper education and interface with farmers, there is widespread resistance to the idea WUAs assuming management and maintenance responsibilities beyond the mesqa level.*

*The implementation of this project will require major structural changes in the irrigation and drainage systems in the proposed areas. It would have to proceed very cautiously, and yield responsive results if it were to survive in the face of the attitudes the farmers have shown, with their strong belief in the necessity of the role of the government. It must be stated however, that at focus group meetings in the same communities where the survey was conducted, farmers expressed great confidence in the IMT process and objectives.*

## **15. Methodology**

*The initial pilot phase of the Irrigation Management Transfer program has four specific areas under implementation. Villages and communities for this socio-economic study were selected among these pilot command areas. The four sites included two areas in the old lands of the Nile valley and the Delta and two in the newly reclaimed lands of the Western and Eastern deserts: the Bahr el Sagheer branch canal in Dakhalaiya Governorate, the Beni Ebeid branch canal in El Minya Governorate, the Azeema branch canal of South Tahrir in Beheira Governorate, and the Shabab branch canal in Sharqaiya Governorate.*

*A questionnaire was designed and used as the main tool for collection of the data. It was initially planned to use one single questionnaire in all of the areas. Following the field pretest of the survey instrument, however, the questionnaire was effectively divided into two questionnaires that take into account both the traditional and new lands. But aside from minor variations in the design of some area-specific questions, the two questionnaires were essentially similar in structure. The wording and response categories were the same for about 85% of the questions.*

*The questionnaire comprised eleven sections. The first section focused on background information (i.e., the socio-demographic and economic characteristics of the respondents, such as gender, age, education, occupation, marital status, and individual income).*

*The second section focused on the other members of the household (household was defined as all those living under one roof and eating in the same kitchen). The questions from the first section were applied to the other members of the household and the data were used to estimate the proportionate contribution of the farm to household income.*

*The third section included questions about land holdings. It examined farmers' access to land (including ownership, rent, and other forms of land possession), as well as the size of holdings and the exploitation of rented land.*

*The fourth section examined the crop structure of both seasonal and permanent crops, as well as farmers' reasons for cultivating such crops.*

*The fifth part examined the conditions of irrigation. It considered the issue of fragmentation, (i.e., the number of plots in each farmer's possession, their location on the canal, and whether they have irrigation and/or drainage problems). It also elicited farmers' views on water shortages, the impact of shortages on crop yields, the methods used to compensate, as well as irrigation technology and the disputes associated with its use.*

*The sixth section examined farmers' attitudes toward irrigation maintenance. The questionnaire broke maintenance issues down into several specific operations, such as weed removal, gate maintenance, pitching, etc.*

*The central core of the questionnaire comprised sections 7, 8 and 9. The seventh section asked the respondents to compare the perceived abilities of the water users, the government, and the private sector to perform various maintenance functions. This section also measured responses to the potential extension of the Water Users Associations (WUAs) from the mesqa level to the branch canal level, and the conditions that ought to prevail in order for such a plan to be implemented. The eighth section looked at the impact of the transfer on the performance of the irrigation network. The ninth section examined drainage issues, focusing on the farmers' view of current drainage management, abuse by the farmers and the forms it takes, and the potential impact of transferring the management of the drains to the WUAs. Finally, it looked at tile drainage.*

*The tenth section focused on the anticipated period following transfer or handing over of the system to users, examining especially the role of water users and the state in the management and maintenance of the irrigation network. It examined the ability of the WUAs to assume such responsibilities, in light of their current socio-economic situation.*

*The final section of the questionnaire focused on the impact of the current irrigation system on elements of the social fabric and on issues pertaining to social conflict and conflict resolution, and the anticipated impact of the irrigation transfer project on these issues.*

*The original questionnaire was pre-tested in twelve cases in Dakhalaiya, Sharqaiya, and Beheira governorates. It was tested for wording, phrasing, skip pattern, and response categories. Throughout the process, the questionnaire was the subject of considerable scrutiny by a number of evaluators and of considerable discussion by a panel of experts. The panel held several meetings over a three-month period to discuss the various aspects of each question.<sup>5</sup>*

*A sample of 240 water users was selected: 60 from each of the four governorates. The sampling frame used a multi-tiered process, using the boundaries of the four pilot areas as the initial basis, since fluidity in the renting market over the last few years meant there were no reliable records of the precise location of farmers' lands on the canals.<sup>6</sup>*

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<sup>5</sup> The pretest was conducted using four graduate students from Menoufia University. They were instrumental in the analysis of the pretest results and the final design.

<sup>6</sup> While this may limit ability to reliably generalize the results to other areas of the country, it is believed that the results accurately represent the views of the farmers in the respective areas.

*The fieldwork proceeded at a pace of approximately five questionnaires per day, per interviewer. The team covered four governorates in nine days, not including an extra day spent in Dakhalaiya. On average, each questionnaire took about 30 minutes, excluding time spent locating the interviewees and speaking with them about unrelated subjects in order to “break the ice”.*

*The statistical data analysis took about three weeks. The team used SPSS<sup>7</sup> to produce frequency tabulations broken down at the governorate level. These tables were used to make comparisons between the four governorates across the variables described above.*

*(A word about terminology is in order: while aware of the considerable theoretical differences between the terms “farmer” and “water user,” liberty has been taken to use them interchangeably and the movement between one word and the other is merely for stylistic reasons. These words are used to refer to the actual holder of the land, who cultivates and nurtures the crops and uses the water for irrigation.)*

*The term “native” has been used repeatedly, despite the fact that the word can carry a negative connotation in the English language. In Arabic, however, the equivalent word, “Al Ahly” (the local residents, or the nation), is one of the best words to evoke the longstanding differentiation between the social entity categories of state and people. Again, this term has been used frequently in this document as being synonymous with water users and farmers. The English-speaking reader need not feel uneasy with this word. Further, bearing in mind that the names of the governorates are more familiar than those of the branch canals or the villages, the report systematically uses the former to refer to the latter.*

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<sup>7</sup> SPSS is the data processing program, “Statistical Package for Social Sciences.”

## **16. Comparative Look at the Sample Characteristics**

*This section of the report will provide a comprehensive portrait and explanation of the socio-economic and demographic characteristics of the sample communities. The data included here cover variables such as age, gender, marital and educational status, occupational profiles, individual and household income, and the dependency ratio. While the condition of land holdings is closely related to the economic profile of the sample, a separate section is entirely devoted to the subject, given its centrality to this research.*

*In collecting the data on the socio-economic characteristics of the sample, the same classification categories used in the national census of Egypt were employed. This was done to assure a degree of data complementarity when extrapolated and juxtaposed with the national data, and should facilitate comparison and confirm that the sample selected was a representative one.*

*The results of the survey reveal considerable variation, both within and between the four samples, as well as across all the variables except gender and marital status. In all four areas, males constitute the overwhelming majority of landholders (98.3% men; 1.7% women). This finding contrasts sharply with the official figure for the share of women in land holdings (about 8%). However, a distinction between official legal status and actual control of the land should be kept in mind.*

*The variations in age structure are even more pronounced. The data show that the overall average age for the entire sample was about 44.7 years. However, considerable deviations from the mean were found in Sharqaiya, where the average age was younger by five years (39.7 years). In Dakhalaiya and El Minya, the averages were closer to the mean for the entire sample, standing at 42.7 and 43.0 years respectively.*

*More instructive is the categorical distribution of the age structure. Table 1 gives the detailed percent distribution of the age structure of the sample in each of the four canal areas. Table 1 shows that in Beheira only 8.3% were under the age of 35, compared to 22.0% in El Minya, 31.7% in Sharqaiya, and 28.4% in Dakhalaiya. At the same time, 60% of the landholders in Beheira were found to be over the age of 55, i.e. 2.4 times more than in El Minya, 4 times more than in Sharqaiya and 4.5 times more than in Dakhalaiya.*

*The situation described in the preceding paragraph may well be explained by the fact that the majority of the landholders in the sample area of Beheira obtained their land as part of a package of early retirement benefits, after having worked for the government. It further indicates that the criterion of age was used in the distribution of land for the beneficiaries in the Shabab (youth) canal in Sharqaiya.*

*The relatively higher proportion of those over 55 among the landholders in El Minya could be explained by the differences in household structure: anthropologists report that there is a greater tendency in Upper Egypt to house an extended family under one roof rather than establishing independent households immediately after marriage. In such cases, the land remains under the control of the most senior male in the household (usually the father) until his death. The diminution of such social living arrangements in the Delta is testified to by the relative youth of landholders there, as compared with El Minya.*

**Table 1**  
**Percent Distribution of the Age Structure in the Four Canal Areas**

<b>Canal Area</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<b>Age</b>				
15-25	1.7	3.4	11.7	0.0
25-35	26.7	18.7	20.0	8.3
35-45	28.3	23.7	33.3	6.7
45-55	30.0	27.1	20.0	25.0
55-65	8.3	18.6	8.3	53.3
65+	5.0	6.8	6.7	6.7
Not Stated	-----	1.7	-----	-----
N	60	59	60	60

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*The data indicate no significant variations in marital status between the four areas. In all the areas, people do not stay single (either as bachelors or widowers) for very long. It was found that the percent of those married ranged between a minimum of 83.3% in Sharqaiya, which had the most youthful population, and 90% in Beheira. The married rate in both El Minya and Dakhalaiya stood at about 86%.*

*No such uniformity is to be found with regard to education. Table 2 presents the detailed percent distribution of educational status in the four canal areas. The three uppermost educational categories account for about 73.4% of all educational levels in Beheira. This is 2.2 times more than the next area, Dakhalaiya, in which these categories accounted for about 33.4%. The Beheira figure was 3.3 times the number for El Minya and Sharqaiya. However, it should be noted here that the relative share of those who received university education in the two old land areas and Sharqaiya is much higher than that usually found in rural areas of Egypt (less than 0.5%). This is*

*explained by the fact that our sample is made of landlords, who are more likely to come from families that can afford to invest in education.*

*The illiteracy rate approximates the average for Egypt as a whole (38%) in the cases of Dakhalaiya and Sharqaiya, and that of rural Egypt (55%) in the case of El Minya. This is consistent with our knowledge of the state of educational attainment in these governorates. However, the fact that the sample was predominantly male calls for some caution in making comparisons.*

**Table 2**  
**Percent Distribution of the Educational Level in the Four Canal Areas**

<b>Canal Area</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<b>Education Level</b>				
<i>Illiterate</i>	36.7	52.5	41.7	15.0
<i>Read &amp; write</i>	21.7	15.3	30.0	8.3
<i>Elementary</i>	5.0	6.8	1.7	1.7
<i>Preparatory</i>	3.3	3.4	3.3	1.7
<i>Secondary</i>	16.7	13.6	15.0	26.7
<i>Higher than secondary but less than univ.</i>	5.0	3.4	1.7	5.0
<i>University or higher</i>	11.7	5.1	5.0	41.7
<i>Not reported</i>	-----	-----	1.7	-----
<i>N</i>	60	59	60	60

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*The occupational structure of the study sample reflects the high level of educational attainment. It is worth noting that the proportional share of the category of “professionals” is almost identical to that of university education in all of the four areas. Furthermore, the proportional share of those who are working in agriculture exceeds the national average of 38%, by far. In Beheira, the governorate with the lowest proportion of people working in agriculture, the national average is exceeded by 12%. Dakhalaiya exceeds the national average by about 27%. Both El Minya and Sharqaiya have 2.18 times the national average of people claiming agriculture as their occupation. In those two areas, such people accounted for an average of 83.2%. Table 3 shows the detailed occupational profile in the four canal areas.*

**Table 3**  
**Percent Distribution of the Occupation Structure of the Sample**  
**in the Four Canal Areas**

Canal Area Occupation	Dakhalaiya	El Minya	Sharqaiya	Beheira
<i>Professionals</i>	13.3	6.8	6.7	41.7
<i>Administrators</i>	1.7	3.4	1.7	1.7
<i>Clerical</i>	6.7	1.7	1.7	3.3
<i>Sales</i>	1.7	-----	-----	1.7
<i>Services</i>	8.3	3.4	6.7	1.7
<i>Agriculture</i>	65.0	83.1	83.3	50.0
<i>Production</i>	1.7	1.7	-----	-----
<i>Unclassified</i>	-----	-----	-----	-----
<i>No occupation</i>	1.7	-----	-----	-----
<i>N</i>	60	59	60	60

Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers *before* the introduction to them of the concept of *water user organizations or IMT*.)

*The majority of the present sample, being landholders, generally do not work for wages, but are either self-employed or employers. Together, these two categories account for about 71.1% of respondents in Dakhalaiya, 79.6% in El Minya, 85% in Sharqaiya and 96.6% in Beheira. Approximately 26% of the entire sample respondents reported having multiple jobs. The highest proportions are to be found in Dakhalaiya and Beheira, at 30%, while the rate is around 22% in El Minya and Sharqaiya. Respondents reported that the agriculture sector provides the most frequent second job. This is followed by commerce, transportation, social services, and personal services.*

*There was very little variation in the rate of economic activity at the household level. The overall average rate of activity was about 1.72 working persons per household. At the same time, the average size of the household was around 6.32 persons, well above both the national average, about 4.9 persons per household, and the average for rural Egypt, about 5.4 persons per household. The highest rate of economic activity was found in Beheira (1.9 persons per household), and the lowest in Dakhalaiya (1.6 persons). Both El Minya and Sharqaiya households indicated approximately 1.7 actively employed persons per household.*

*The majority of the households in the four canal areas tend to devote one individual to agricultural work, regardless of the size and area of landholdings. In Beheira, where the average area of holdings is about 17 feddans, 81.7% of households chose only one person to work in agriculture. In Sharqaiya, second in the average size of holdings (4 feddans and 15 qirats), only 53.5% of the households were found to have one person working in agriculture. In El Minya (about 2 feddans per household), 79.3% of the households had one person working in agriculture, compared with 68.2% in Dakhalaiya (4 feddans per household). With the exception of Sharqaiya, it was rare to find a household in which more than three persons worked in agriculture.*

*The lack of differentiation in the rate of activity does not necessarily indicate an absence of differences in terms of individual or household incomes. Beheira's individual incomes averaged about LE 1,477.5 per month, almost five times as much as the average income of the interviewees in the other three areas. It was found that the average individual incomes of the interviewees were about LE 296 in Dakhalaiya, LE 278 in Sharqaiya, and LE 264 in El Minya. This means the individual income of interviewees in Beheira was about five times higher than in Dakhalaiya, 5.3 times higher than in Sharqaiya, and 5.6 times higher than in El Minya.*

*The average contribution of the other working individuals in Beheira's households was also shown to be higher, both in absolute and relative terms. Table 4 shows the absolute and relative share of the interviewees and the other household members in the total monthly household income.*

*Table 4 shows that the other household members are also contributing factors that explain the significant difference in income between Beheira and the other pilot IMT communities included in the sample. Beheira households had 5.6 times more income than those in Dakhalaiya, 5.9 times more than in El Minya, and 6.4 times more than in Sharqaiya. Such differences logically can be explained by observing variations in land-holding size and educational levels, and in the communities' associated occupational profiles. To some degree, differences between household incomes in El Minya and Sharqaiya may be attributed to variations in the households' demographic configurations. Average household compositions in Sharqaiya are younger. Therefore, even if children are gainfully employed, wages are likely to be much lower than in the El Minya sample, which indicates an "older" age composition. By contrast, Dakhalaiya's average household age is more similar to that found in El Minya. Nevertheless, Dakhalaiya's other household members earned slightly more than those in El Minya did.*

**Table 4**  
**Absolute and Relative Share of the Interviewees and Other Household Members in Household Income in the Four Canal Areas\***

Canal Area	Dakhalaiya	El Minya	Sharqaiya	Beheira
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Share of ...				
<i>Interviewee</i>	296 82.5	264 77.4	278 89.4	1478 73.4
<i>Other household</i>	63	77	33	535
<i>Members</i>	17.5	22.6	10.6	26.6
<i>Total income</i>	359	341	311	2013
<i>%</i>	100.00	100.00	100.00	100.00

*\* Figures rounded to nearest LE*

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*In estimating household incomes, the majority of interviewees in the four canal areas included income generated from the farm or, generally termed, from subsistence production. Farm income was included in the estimations of 68.4% of respondents in El Minya, 75.4% in Dakhalaiya, 86.7% in Beheira, and 95% in Sharqaiya. It can be concluded therefore, that agriculture plays the predominant role in providing livelihood in all the sampled communities.*

*It also appears, however, that in this regard there are some differences between the situation in the old and the new lands. There is a greater reliance on farm income among the new lands households. In Sharqaiya and Beheira, the relevant rates were 76.5% and 80.2%, respectively. By contrast, dependence on the contribution of agriculture was estimated to be 65% in El Minya and 57.8% in Dakhalaiya. This suggests varying degrees of involvement on the part of the households in the national labor market. Households in the more traditional lands find themselves in a position where they have to release a portion of their labor power into the market as an economic maximization strategy. As will be seen in this study, households in the new lands are closely allied tied to the national economy in other ways as well.*

## ***17. The Structure of Landholdings and Patterns of Investment***

There is considerable variation between the four IMT pilot canal areas in terms of the size of holdings. The average size of holdings in Beheira is about 17 *feddans* and 2 *qirats*. Sharqaiya is a distant second, with an average area one fourth that in Beheira (4 *feddans* and 16 *qirats*). Dakhalaiya is third, with average holdings of about 3 *feddans* and 11 *qirats*, while El Minya ranks last, with an average area of slightly less than 2 *feddans* (1 *feddan* and 23 *qirats*).

*About 91% of respondents reported holdings as privately owned. The other 9% are rented. There appears, however, to be a greater tendency to rent in the old lands than in the new lands. In the old lands, rent accounted for 12.7% of all holdings in the sample, compared with only 5.2% of all holdings in the new lands.*

*Similar figures for the old lands are quite significant. Prior to the enactment of the new land rent law, approximately 25% of landholdings in rural Delta regions of Egypt were rented. The data from this present survey shows a major reduction in this level. Operating under the assumption that the present survey figures are accurate and representative, there is reason to conclude that liberalization of rent laws has affected a major segment of the rural population. One may wonder how this will bear on landholders' attitudes toward privatization of the irrigation system and the intended transfer of part of the branch canal. This question will be further explored later in this report.*

*Despite the increasing commercialization and market-orientation of Egyptian agriculture over the last two decades, the persistence of pre-free market arrangements is evident. It appears that rent-in-kind is mushrooming, at least as far as the present sample demonstrates. Rent-in-kind amounted to about 41.6% of all forms of rent. It constituted between one third and one quarter of all renting activity in Sharqaiya and Beheira. Rent-in-kind was most common in Dakhalaiya, where it accounted for 57.1% of all rent activity, compared with 28.6% renting in cash. The remaining 14.3% of the respondents reported renting both in cash and in kind.*

*The data show that the percentage of respondents offering land for rent is almost identical to the percentage seeking land to rent. The rates for were 10.5% on the average in the old lands, and about 4.2% in the new lands. This confirms the narrowing of the land rent market. This may be explained by the systematic decline in crop prices over the past few years. This decline, in turn, pushed the rent value down to about LE 750 per feddan in the old lands. However, rent in the new lands, especially in Beheira, remains high. This may be explained in terms of the differences in crop structure, i.e., high value cash crop orchards are more common in Beheira.*

While none of the interviewees in El Minya and Dakhalaiya reported to own reclaimed land in the desert, about 10% in Sharqaiya and 18.3% in Beheira owned land in either the Delta or the Nile valley. There is considerable variation in the sources of access to land between Sharqaiya and Beheira. In Sharqaiya, 66.1% of all landowners bought their land from the local traditional residents (al Ahly). This compares to only 27.3% in Beheira. By contrast, 69.1% in Beheira purchased their land from the government, compared with just 30.4% in Sharqaiya. An even proportion of 3.6% bought their land from both sources in the two governorates.

Table 5 sheds light on some significant comparative indicators of the sources of land. However, the data in the table have to be interpreted with extreme caution. The considerable gap between maximum and minimum buying prices is essentially due to cost variations at the time of purchase. (There are no constant prices against which to measure recent increases.) The price of agricultural land in Egypt has increased dramatically over the past 30 years, indicating the presence of a major land market.

One conclusion that could be drawn from the data, however, is that the free and open land market appears to be discriminating against the poorer landowners of Sharqaiya, who paid 3.6 times the price of one feddan in Beheira. By contrast, the government-regulated market in Sharqaiya appears to favor the farmers there, who paid 53% of what Beheira landlords paid per feddan.

**Table 5**  
**Comparative Indicators of Land Ownership Source in Sharqaiya and Beheira**

Indicators	Source of Land			
	Local Residents (al Ahly)		Government	
	Sharqaiya	Beheira	Sharqaiya	Beheira
Price per feddan*				
Minimum	1500	600	240	250
Maximum	100,000	20,000	15,000	12,000
Total value*	501,000	132,600	74,490	45,650
# of feddans	154,8	148,0	85,4	27,7
Average price per feddan*	3236,6	895,9	872,0	1651,0
N	21	44	40	45

Source: Survey results

\* in LE

(Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)

However, it takes a considerable amount of investment to make reclaimed land arable. Those respondents who reported on the amounts of capital investment they had to put into their land indicated that, on average, they invested about LE 15,700 in Sharqaiya and LE 137,190 in Beheira.

Table 6 compares the distribution of capital investment in land between Sharqaiya and Beheira. It is clear from the table that one is confronted with two distinct groups of landlords. The data demonstrate that in Sharqaiya, 91% of the landlords invested less than LE 50,000. By comparison, only 31.6% did the same in Beheira. Furthermore, while 17.5% of landlords in Beheira invested more than LE 250,000 in the land, none of the landlords did so in Sharqaiya. The Sharqaiya landlords only out-invested their Beheira counterparts in one category: LE 100,000-LE 250,000.

Considering the allocation of capital investment, the data indicate some notable variations between the two groups. Table 7 gives a detailed picture of the proportion of landlords in each of the two governorates who invested in selected aspects of land development. Using the broad categories of fixed versus variable capital investment, Beheira landlords invested more across the board than their Sharqaiya counterparts did, *except* in land leveling. The situation is similar for variable capital investment, except that Sharqaiya landlords reported investing 3.9 times as much as their Beheira counterparts on livestock.

The situation described above indicates that Sharqaiya landlords are more similar to the valley farmers, for whom livestock is an integral part of the household income. . By contrast, Beheira landlords are about ten times more likely to buy agricultural equipment, and are an estimated 13.2 times more likely to buy fruit trees. This is another strong indication to the more traditional agro-based inclination of the Sharqaiya landlords.

**Table 6**  
**Distribution of Capital Investment in Land in Sharqaiya and Beheira**

Investment Category	Sharqaiya				Beheira			
	#	%	Value in 000 LE	Average 000	#	%	Value in 000 LE	Average 000
< 25,000	39	88.6	355,6	8,6	9	15.8	109,7	12,2
25,000 - < 50,000	1	2.3	30	30,0	9	15.8	280	31,0
50,000 - < 100,000	3	6.8	170	56.7	15	26.3	920	61,3
100,000 - < 250,000	1	2.3	155	155	14	24.6	1,660	118,6
250,000 - < 500,000	---	---			6	10.5	1,750	291,7
500,000 +	---	---			4	7.0	3,100	775,0

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<i>N</i>	44	100.00	690,5	15,2	57	100.00	7,820	137,2
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*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*In conclusion, there appears to be some degree of similarity in the modes of access to land. The major route to access is through ownership. The renting market seems to be shrinking, both in the old and new lands. This is accompanied by the resurgence of pre-“free market” arrangements, as evidenced by the predominance of in-kind rent. In addition, there are clear differences in the patterns of investment within the new lands. Sharqaiya landlords are closer in their behavioral patterns to the traditional farmers of the Delta and the Nile valley, while those of Beheira are more of the free-market type, in terms of both the amount and the allocation of their investments in the land. This difference will become more evident in the discussion of crop structure.*

**Table 7**  
**Proportion of Landlords in Sharqaiya and Beheira Reporting**  
**Capital Investment in Certain Fixed and Variable Categories**

Category of Capital Investment	Fixed or Variable*	Sharqaiya	Beheira
<i>Land reclamation</i>	<i>F</i>	62.8	94.4
<i>Sand breakers</i>	<i>F</i>	48.8	55.8
<i>Land leveling</i>	<i>F</i>	86.0	71.7
<i>Construction of irrigation network</i>	<i>F</i>	9.5	28.0
<i>Digging wells</i>	<i>F</i>	2.3	85.7
<i>Construction of drainage system</i>	<i>F</i>	----	9.6
<i>Buying agriculture equipments</i>	<i>V</i>	9.3	94.2
<i>Buying fruit trees</i>	<i>V</i>	7.0	92.7
<i>Introducing electrical current</i>	<i>V</i>	14.0	83.0
<i>Buying livestock</i>	<i>V</i>	25.6	6.6
<i>Chicken farm</i>	<i>V</i>	9.3	23.1
<i>Telephone lines</i>	<i>F</i>	----	75.0
<i>Dairy product factory</i>	<i>V</i>	----	9.6
<i>Building house for farm workers</i>	<i>F</i>	11.6	89.1

\* *F* = Fixed, *V* = Variable capital

---- No investments were made in this category

**(Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)**

*The four areas do not only vary in their socio-economic characteristics and in access to land. They also show a very high degree of diversity in terms of access to technology and dependence on agricultural machinery. Table 8 shows the percent distribution of access to selected types of agricultural machinery, be it in outright ownership or in partnership with others. It is clear from the Table 8 that Beheira farmers depend to a much greater extent on machinery in cultivating their landholdings than the farmers in the three other governorates cultivate. For example, about 73% of Beheira farmers own a tractor, either outright or in partnership. The Dakhalaiya farmers are second, but with only 11.9% having access to a tractor. Beheira farmers are also the only ones who own mechanical hoes or harrows, and they are far more likely to own spraying motors and deep pumps. They only fall behind the other areas in the case of some irrigation machines, such as the mechanical water wheel and the mechanical screw, both of which are of a localized nature. In ownership of water pumps, Beheira farmers emerge second in degree to Dakhalaiya farmers. The figures in the Table 8 suggest the presence of a large market for the hiring of agricultural machinery in all four areas. In El Minya, the most*

*commonly owned machine is the water pump. Sharqaiya farmers are last, in terms of both the numbers of equipment at their disposal and the relative number of those who own machines. Ownership of mechanized farm implements, would appear, therefore, to be a function of the size of holdings.*

**Table 8**  
**Percent Distribution of Access to Agricultural Machinery in the**  
**Four Canal Areas, Either Outright Ownership or in Partnership**

Canal Areas Agricultural Machinery	Dakhalaiya		El Minya		Sharqaiya		Beheira	
	Pure owner -ship	In Partner -ship	Pure owner -ship	In Partner -ship	Pure owner -ship	In Partner -ship	Pure owner -ship	In Partner -ship
Tractors	10.2	1.7	3.4	3.4	3.3	1.7	33.3	40.0
Trailers	5.1	----	3.4	3.4	3.3	----	21.7	6.7
Mechanical Hoe / Harrow	----	----	----	----	----	----	16.7	3.3
Mechanical thresher	1.7	----	3.4	1.7	----	----	11.7	3.3
Spraying motor	1.7	----	----	----	3.3	----	53.3	----
Deep pump	1.7	1.7	1.7	----	1.7	----	46.7	----
Mechanical water wheel	6.8	28.8	1.7	----	----	----	11.7	1.7
Mechanical screw	11.9	18.6	1.7	----	----	----	8.3	----
Water pump	36.2	13.8	20.7	3.4	5.0	----	38.3	----

Source: Survey Results

(Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)

## 18. Crop Structure

The questionnaire devoted considerable attention to the issue of crop structure. Crop structure not only bears on the economic well being of the farmers but it also affects, and is affected by, the demand for irrigation water. For this reason, this study considered aspects of crop structure with a view toward the factors that determine farmers' choices of various crops. This section addresses these issues.

*To begin with, it was found that in any given season, farmers do not grow more than three crops. There was only a single case where there was a fourth crop, in El Minya in the winter season. In fact, two crops is the norm. Furthermore, each governorate tends to focus on a given set of crops, especially in the summer. Data in Table 9 show the first two crops grown during the summer and winter, as well as the perennial ones, by the farmers in the sample.*

**Table 9**  
**Crop Structure in the Four Canal Areas**  
**During the Summer, Winter, and Perennially**

Canal Area		Dakhalaiya	El Minya	Sharqaiya	Beheira
Season & Crop					
Summer	Crop 1	Rice	Maize	Peanuts	Peanuts
	Crop 2	Maize	Cotton	Sesame	Maize
Winter	Crop 1	Wheat	Wheat	Wheat	Wheat
	Crop 2	Clover	Clover	Clover	Clover
Perennial	Crop 1		Sugarcane	Sugarcane	Orchards
	Crop 2				Fruits

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*It is worth noting here that winter crops are almost exclusively subsistence ones, while the summer crops tend to be partially oriented toward the market, as in the case of rice (which is also a basic staple in Dakhalaiya), or totally oriented toward the market, as in the case of cotton, peanuts, and sesame. This is even true of the relatively commercial-oriented landowners of Beheira, who devote their land allocated for field crops to wheat and clover. Nevertheless, the line between market and subsistence crops is sometimes an unclear one.*

*Sugarcane, orchards and fruits were the only three perennial crops reported in the survey. Sugarcane is grown in El Minya and, surprisingly, in the desert land of Sharqaiya. The fact that the crop is grown in Sharqaiya is alarming since sugar cane's water requirement is around 24,000 cubic meters per year in the Nile valley.*

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*In the desert land, one would expect even higher levels of water consumption. Orchards and fruits are exclusively grown in Beheira. If a third crop is grown in Dakhalaiya, it is cotton in the summer and broad beans in the winter. In El Minya and Sharqaiya, farmers only reported a third crop in winter and they selected either onions or another, unidentified crop.*

*One can find no common reasons why farmers in the four areas chose to cultivate particular crops. However, there seems to be a slightly higher degree of agreement between farmers in Dakhalaiya and El Minya than there is between those in Sharqaiya and Beheira. Data offered in Table 10 give the percent distribution of those citing each of the listed motivations to grow particular crops and the rank order of each cause in the four canal areas.*

**Table 10**  
**Reasons for Cultivating Crops**

<b>Canal area</b>  <b>Rank Causes</b>	<b>Dakhalaiya</b>		<b>El Minya</b>		<b>Sharqaiya</b>		<b>Beheira</b>	
	<b>%</b>	<b>Rank</b>	<b>%</b>	<b>Rank</b>	<b>%</b>	<b>Rank</b>	<b>%</b>	<b>Rank</b>
<i>Cultivated by neighbors in the fields</i>	46.7	3	20.3	5	23.3	6	15.0	5
<i>Market demand</i>	38.3	4	32.2	4	21.7	7	55.0	3
<i>Suitability for soil</i>	48.4	2	18.6	6	75.0	3	71.7	1
<i>Bare water shortage</i>	8.3	7	1.7	9	70.0	4	60.0	2
<i>Meet household consumption</i>	55.0	1	78.0	1	25.0	5	10.0	8
<i>Make use of the land after clearing it from previous crop</i>	6.7	10	1.7	9	100.0	1	15.0	5
<i>Payment of rent</i>	8.3	7	3.4	8	100.0	1	15.0	5
<i>Cover livestock feeding needs</i>	25.0	4	54.2	2	13.3	8	6.7	9
<i>High cash returns</i>	30.0	5	49.2	3	3.3	10	33.3	4
<i>Does not need much labor</i>	8.3	7	13.6	7	6.7	9	---	10

*Source: Survey Results*

*(Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*The data in the table show that there appears to be a more pronounced water shortage in the new lands than in the old lands. In El Minya, where there is a continuous flow in the Beni Ebeid canal, the fact that a certain crop can withstand water shortages appears to have no bearing on farmers' decisions. This holds to a lesser extent in Dakhalaiya as well, where growing rice is a matter of economic survival. Market demand is the third most important factor for Beheira farmers, which makes them the most market-conscious of the four groups.*

*Covering household consumption is the most important factor for the farmers of the traditional lands in Dakhalaiya, and even more so in El Minya. Sharqaiya farmers are most concerned with making the greatest use of their land. This concern appears to be the result of diminishing returns from their lands due to water shortages, as well as to the fact that the farmers are still paying off their land. Fully 100% of Sharqaiya farmers cited "payment of rent" as a major motivation. Labor intensiveness does not appear to be a significant factor. Few respondents cited the fact that certain crops do not require much labor as a factor in their choice of crop cultivation. This probably could be explained by the fact that in the old lands, peasants essentially depend on family labor, while in the new lands they either have to depend on hired workers, as in Beheira, or on a mixture of hired labor and labor exchange between farmers, i.e. badal, as is commonly found in Sharqaiya.*

*The farmers were also asked to rank four potential reasons for selecting the seed brands used on their largest tract of land, both in summer and in winter. The reasons identified were: a) the crop does not stay long in the ground, b) it saves water, c) it resists disease, and d) the yield is good. Broadly speaking, these four reasons could be reclassified under plant characteristics (rapid growth and disease resistance), output characteristics (yield), while saving water is both an input factor and a plant characteristic.*

*Table 11 shows the rank assigned by farmers to each of these four factors. Judging by the number of times each factor was seen as the most important, the emerging pattern for the summer crops is that farmers in the traditional areas of Dakhalaiya and El Minya are more concerned with the yield, or the output element. 71% in Dakhalaiya and 79.3% in El Minya ranked it as the most important factor in determining summer crops. Saving water does not appear to be much of a concern for the farmers in the old lands, despite the fact that it ranks second among the four factors. It was cited as the most important factor by only 13.7% in Dakhalaiya and 10.7% in El Minya.*

*In the case of El Minya, it is clear why farmers were not concerned about saving water: i.e., they are receiving continuous flow in the Beni Ebeid canal. Equally perplexing is the fact that Dakhalaiya farmers, predominantly rice growers, do not accord more importance to saving water. One possible explanation is that farmers may think that, when it comes to rice, there are no water-saving seeds. In any case,*

*Dakhalaiya farmers saw water-intensiveness as no more of a factor in choosing seed than the time the crop stayed in the ground.*

**Table 11**  
**Percent Distribution of the Ranked Importance**  
**of the Determinants of Seed Type Selection (Summer Crops)**

Canal area  Determinants of seed type selection		Dakhalaiya	El Minya	Sharqaiya	Beheira
	Rank				
<i>Short stay in the field</i>	1	13.3	3.4	3.3	16.3
	2	30.0	27.1	15.0	23.8
	3	36.7	32.2	35.0	57.1
	4	20.0	35.6	46.7	1.7
<i>Saving water</i>	1	13.7	10.7	46.6	63.2
	2	37.3	23.2	15.0	15.8
	3	15.7	44.6	31.0	10.5
	4	33.3	8.9	6.9	10.0
	5	----	1.8	----	----
	N.R.	----	10.7	----	----
<i>Disease Resistance</i>	1	5.9	7.1	3.4	5.3
	2	56.9	41.1	64.4	47.4
	3	23.0	10.7	22.0	42.1
	4	13.7	30.4	10.2	5.3
	N.R.	----	10.7	----	----
<i>Quality of Yield</i>	1	71.2	79.3	44.1	38.1
	2	13.6	13.8	22.0	23.8
	3	3.4	1.7	20.3	19.0
	4	11.9	3.4	13.6	19.0
	N.R.	----	1.7	----	----

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*In contrast, the new lands farmers are more concerned with the issue of production input, in terms of choosing seed varieties that save on water consumption. This is most evident among Beheira farmers, of whom 63.2% accorded this factor the top priority. Sharqaiya farmers also chose water intensiveness as the most important issue, although by a slimmer margin. The yield was their secondary concern. In conclusion, there seems to be very little concern in the four canal areas over the plant characteristics of summer crops, but more concern with the socio-economic issues of yield and water saving.*

The situation is not radically different with regard to winter crops (see Table 12). The factors affecting the decision to use certain types of seed remain the same in terms of their order and the relative importance accorded to each one, with minor quantitative differences here and there. One point worth noting is that a slightly higher proportion of farmers in the two old land areas showed more concern with the issue of water saving. One wonders whether this could be attributed to the winter closure practices for annual maintenance. By contrast, this concern drops in the new lands, and rather sharply (16.1 percentage points in Sharqaiya and about half that in Beheira). One contributing factor for the difference may be that, along with the climatic change, there is variable temporal demand for water by each crop. In summer, the orchards start to blossom and water shortage could be detrimental to the crop. Thus, crop structure plays a role as well.

**Table 12**  
**Percent Distribution of the Ranked Importance**  
**of the Determinants of Seed Type Selection (Winter Crops)**

Canal area  Determinants of seed type selection		Dakhalaiya	El Minya	Sharqaiya	Beheira
	Rank				
<i>Short stay in the field</i>	1	11.9	3.4	5.0	4.5
	2	33.9	28.2	11.7	22.7
	3	23.7	30.5	31.7	13.6
	4	30.5	33.9	50.0	59.1
	N.R.	----	1.7	1.7	----
<i>Saving water</i>	1	19.6	12.5	30.5	55.0
	2	25.5	25.0	23.7	20.0
	3	29.4	44.6	39.0	15.0
	4	25.5	8.9	6.8	10.0
	5	----	8.9	----	----
<i>Disease resistance</i>	1	4.0	16.1	10.2	1.0
	2	64.0	33.9	59.3	54.0
	3	18.0	8.9	22.0	40.0
	4	14.0	32.1	8.5	5.0
	N.R.	----	8.9	----	----
<i>Quality of yield</i>	1	71.4	67.2	53.4	45.0
	2	12.5	17.2	20.7	9.1
	3	8.9	5.2	15.5	27.3

	4	7.1	6.9	10.3	18.2
	5	----	1.7	----	----
	N.R.	----	1.7	----	----

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

There appear to be two distinct patterns in seed selection, one that is characteristic of the old lands in El Minya and Dakhalaiya, where a greater stress is placed on output, and another in the new lands of Sharqaiya and Beheira, where input (water saving) is the main concern.

## ***19. Current Irrigation Conditions***

The ease with which the land is irrigated is a function of several factors, among which the availability of water is just only one. This section takes a closer look at factors affecting ease of irrigation other than water availability. Among these additional factors are land parceling, location and physical situation, i.e. problems from which a specific plot may suffer, whether they have to do with irrigation or drainage. The section will also examine farmers' perception of water shortage, and the ways in which farmers adapt to this problem, farmers' estimates of the impact of water shortage on crops, and access to irrigation technology.

As far as fragmentation is concerned, the available data indicate that in general the old lands suffer (not surprisingly) more acutely than the new lands. However, the Beni Ebeid canal area in El Minya has a higher degree of fragmentation than Dakhalaiya. For example, where it was found that the landholdings of 61.7% of the farmers in the Al-Nazl canal area in Dakhalaiya were composed of one plot, only 39.0% of holdings in the Beni Ebeid canal area were in the same situation. By contrast, 32.2% of El Minya farmers had land that was fragmented into three or more plots. A little more than one fifth had five different plots of land, compared with only 1.7% in Dakhalaiya.

*In the new lands, the picture is radically different. The great majority of farmers along the Sharqaiya Shabab canal and the Beheira Tahadi canal reported that their land was consolidated into one plot (88.1% and 91.2%, respectively). Furthermore, none in Sharqaiya had land that was divided into more than three plots, and only one in Beheira was in that situation. Table 13 gives the details of the land fragmentation in the four canal areas. The average number of plots ranges between a minimum of 1.1 plots per farmer in Sharqaiya and 2.1 plots per farmer in El Minya. That is a difference of one whole plot, which is certainly not a negligible variation. Beheira has a slightly higher average number, 1.2 plots per farmer, while Dakhalaiya was in the middle with an average of 1.5 plots per farmer. It is worth noting that the fragmentation in Sharqaiya and Beheira is a result of renting. In Dakhalaiya and El Minya, it is the result of the long history of inheritance laws. It is probable that, in the long run, a similar fate awaits the new lands.*

**Table 13**  
**Land Fragmentation in the Four Canal Areas**

Canal Area # of plots	Dakhalaiya	El Minya	Sharqaiya	Beheira
1	61.7	39.0	88.1	91.2
2	28.3	28.8	10.2	3.5
3	8.3	22.0	1.7	3.5
4	----	3.4	----	1.8
5	1.7	6.8	----	----
Total # of plots	91	124	67	66
Number of respondents	60	59	59	57
Average # of plots	1.5	2.1	1.1	1.2

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*Despite the fragmentation, very little land is left fallow. More than 90% of farmers reported they did not leave any of their land fallow, with the exception of Beheira, where about 17.9% of farmers reported they left some portion barren. However, there were some notable variations with regard to the proportion of land left barren. These were loosely related to the area of holding. Among farmers who left portions of their land fallow, Dakhalaiya farmers estimated that they left about 11.0% of their lands barren, and those of El Minya about 14.2%. Sharqaiya farmers, second in terms of the average size of holdings, left about 37% of their land fallow, while Beheira farmers did the same with about 29.6% of their land.*

*In a sense, then, fragmentation does not appear to be entirely disadvantageous. As fragmentation leads to greater concentration of landlords over a given area of land, it helps make access to water much easier. Data drawn from our survey show that a higher proportion of farmers in the old lands reported that their plots are located either at the head or the middle of the canals from which they irrigate. By contrast, as Table 14 shows, a higher proportion of farmers in the new lands reported that their plots are located toward the tail of the canals. This is especially the case with regard to the first and second plots. The result is that a considerably smaller proportion of old lands farmers said they were concerned with whether their plots were having irrigation problems. There was, however, very little mention of drainage problems in either the old or the new lands. It appears reasonable to conclude that there is a close association between the degree of fragmentation and irrigation problems: the greater the degree of fragmentation, the lesser the irrigation problems. It is those at the tail of the canal who suffer the most, and they are proportionally fewer in the old lands.*

*But what are the criteria upon which a farmer believes that his land is located in the middle or the tail? Again, the data reveal some variations between the old and the new lands. The most important criterion is the distance between the gate opening and the parcel, according to 64.3% of farmers in Dakhalaiya and 80% of farmers in El Minya. By comparison, only 25.4% in Sharqaiya and 41.5% in Beheira identified that factor as most important. In Sharqaiya, 45.8% of farmers said the location of the village (the fact it is at the end of the canal) was the most important factor, and another 16.9% stated that they were the last ones on the booster pumps. 24.4% of their counterparts in Dakhalaiya cited the same factor, and another 29.3% cited the location of the village. Thus, it is not only the location of the parcel within the village that matters to farmers; it is also the location of the village itself.*

*With this being the case, a majority of respondents believe that there is a shortage in irrigation water: 88% in Dakhalaiya, 95% in Sharqaiya and 83.3% in Beheira. In El Minya, thanks to the continuous flow, no one believes that there is a water shortage. Those farmers who believe there is a problem also believe the water shortage has adverse consequences on crop yield. Dakhalaiya farmers gave the most conservative estimates, putting the average percent of crop loss for the summer season at 44.4%. Sharqaiya and Beheira farmers, on the other hand, gave higher estimates, putting the figures at 56.5% and 53% respectively.*

**Table 14**  
**Percent Distribution of the Location of Plots on the Canals, Average Size of Plots in *Feddans* and *Qirats*,  
Ratio of Plots Owned to Total Number of Plots, and Irrigation and Drainage Problems From Which They Suffer**

Canal Area	Dakhalaiya and El Minya							Sharqaiya and Beheira*						
	Location on the Canal			Average size of plot (F Q)	% Owned	Problems in**		Location on the Canal			Average size of plot (F Q)	% Owned	Problems in	
	Head	Middle	Tail			Irrigati on	Drainage	Head	Middle	Tail			Irrig atio n	Draina ge
1	37.0	48.7	14.3	1 22	86.4	37.8	5.9	17.5	24.2	58.3	10 15	94.2	90.0	9.2
2	21.7	63.3	15.0	1 4	86.4	33.3	5.1	----	36.4	63.4	9 10	81.8	90.9	9.1
3	15.4	46.2	38.5	1 3	92.0	26.9	15.4	----	66.7	33.3	10 12	66.7	66.7	0.0
4	12.5	75.0	12.5	-- 14	100.0	12.5	37.5	100.00	----	----	9 ---	100.0	0.0	0.0
5	40.0	40.0	20.0	-- 13	100.0	20.0	40.0	----	----	----	----	----	----	----

\* Maximum number of plots in Sharqaiya and Beheira is 4 plots

\*\* Percent of those responding "yes"

Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)

*The crop loss figures for second and third crops were nearly the same as those for the first. For winter crops, the average crop loss was 11% lower, according to the estimates of Dakhalaiya farmers. But season had little impact on crop loss for either Sharqaiya or Beheira farmers, who estimated their respective winter losses at 50.2% and 51.8%.*

*There were much lower estimates of loss in the second crops in Dakhalaiya (20.9%) and Beheira (37.5%). However, the number of respondents in both cases was too small to draw any conclusions (11 and 6 respondents, respectively). In the case of Sharqaiya (with 56 respondents) the estimated average loss of second crops stood at 46.8%, about 4% lower than the estimate for first crops. For permanent crops, the estimated average loss in Sharqaiya was 50%. The figure was a comparatively high 60.1% in Beheira.*

*With such detrimental consequences of water shortages, farmers rely on different methods to protect their yields. In Dakhalaiya, the most common tactic is the resort to the drain. 58.3% of the farmers there identified the drain as the source they use to meet water requirements in case of shortage. The other methods are far less common; the second most common method, irrigation by night, was used by only 8.3% of the farmers. There is even greater reliance on the drain in Sharqaiya, where 96.7% said they depend on it in case of water shortages. Another 8.3% resort to selecting crops that require less water, and 6.7% said they select seeds that can withstand water shortage.*

*Table 15 shows the detailed percent distribution of the methods farmers use to compensate for water shortages. It is clear that Beheira farmers depend on more sources to satisfy crop water requirements. They rely on methods that enhance production input (i.e. increase water supply), as we find about 98% use well water. But they also use methods related to plant characteristics, with 66.7% cultivating crops that require less water and 18.2% selecting seeds that can withstand water shortage. 10% of the Beheira farmers depend on drains or irrigation by night. However, it appears that not even all of these efforts are always enough, as 27.1% of farmers in Dakhalaiya, 80% in Sharqaiya, and 33.3% in Beheira, say they have no satisfactory solution to the problem.*

**Table 15**  
**Percent Distribution of Farmers' Practices**  
**to Resolve the Water Shortage Problem**

<b>Canal Area Practices*</b>	<b>Dakhalaiya</b>	<b>El Minya**</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<i>Resort to the drain</i>	58.3	----	96.7	10.0
<i>Resort to well water</i>	2.1	----	1.7	97.9
<i>Night irrigation</i>	8.3	----	3.3	10.0
<i>Cultivate crops requiring smaller amounts of water</i>	2.1	----	8.3	66.7
<i>Select water shortage-resistant seeds</i>	2.1	----	6.7	18.7
<i>No solution</i>	27.1	----	80.0	33.3

**\*\* Continuous current in El Minya. No one reported water shortage there**

**\* Percent answering "yes" to each practice**

**Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)**

*It seems that water shortages are compounded by the rotation system. In Dakhalaiya, the only area where the irrigation system is operating, 45% of respondents said the rotation is never on time. Another 31.7% said the rotation is sometimes not on time. 6.7% said it is seldom not on time. Only 16.7% said that it is always on time. This affects the attitudes of the farmers, causing them to feel uncertain about what is going to happen. With this being the case, they are almost always ready to violate the rules to ensure the safety of their crops – and their entire livelihood.*

*With stakes so high, there is fierce competition to irrigate. In responding to a question about who has the right to irrigate first, when two part owners of a pump want to irrigate their fields at the same time, 60% of the farmers in Dakhalaiya said it was their right to go first. Another 20% said first priority goes to the one with the larger share in the pump. Another 20% said priority should be given to whoever's crop is in most urgent need of water.*

*This pattern of rationality and self-interest leads to disputes between farmers all the time. In June 2000, Al Ahram reported on an accident in which two farmers were killed in Sohaj in an exchange of fire between two families. The dispute was over irrigation priority (Al Ahram 28/6/2000:25). It should be noted that this happened in*

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*Sohaj, where water availability is less of a problem, and social cohesion is greater than in Dakhalaiya. Such disputes are encouraged by the fact that partners are often neighbors in residence but not in the fields. Proximity of residence helps with the logistics of accessing and storing the machine, yet it makes coordination of use time a more difficult task. The overall effect is an increased likelihood of conflict. This is further complicated by the fact that only 20% of partners are related. The importance of kinship as a conflict neutralizer cannot be overstated.*

*The fact that there is no rotation in the new lands does not mean that the irrigation system there is free of problems. However, problems in the new lands are of different causes, nature, and magnitude. The remainder of this section takes a deeper look into those problems.*

*One major feature of irrigation problems in the new lands is that they are closely tied to the technical aspects of the system. The dominant system there is the sprinkling system. About 95% of farmers in Sharqaiya and 90% in Beheira depend on sprinklers, while 5% and 8.3% respectively use dripping in combination with their sprinkler systems. Only 1.7% in Beheira depends exclusively on drip irrigation. In both areas, the great majority of farmers reported having problems with the way they irrigate their lands. Table 16 shows the percent distribution of those reporting the presence of certain irrigation problems in Sharqaiya and Beheira.*

**Table 16**  
**Percent Distribution of Farmers Reporting Certain Irrigation Problems**  
**in Sharqaiya and Beheira**

<b>Canal Area</b> <b>Irrigation Problems</b>	<b>% Reporting the problem in</b>	
	<b><i>Sharqaiya</i></b>	<b><i>Beheira</i></b>
<i>High cost</i>	52.7	50.0
<i>Blockage of sprinklers</i>	73.1	41.8
<i>Lack of maintenance</i>	65.5	45.5
<i>Mal-distribution of water in the land</i>	94.6	67.3
<i>Other</i>		47.2

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*It is clear from the table that there are some major differences between the two groups in reporting each problem. One notable difference is that 47.2% of Sharqaiya farmers and 12% of those in Dakhalaiya ignored the specific problems mentioned in the questionnaire and chose to talk about other problems. A closer look revealed that*

*they were largely concerned with the booster pumps. When asked to rank the three most important problems, farmers in both canal areas showed a good deal of agreement on the second and third problems. In both areas, the cost of the irrigation system was seen as the second biggest problem. However, the percentages were different. In Beheira, 36.6% ranked the cost of the system second, compared with 28.6% in Sharqaiya. The third most important problem was lack of maintenance, according to 35.1% in Beheira and 30.2% in Sharqaiya. The only disagreement between the two groups was on ranking the most important problem. It is noted that the problems are both technical and economic in nature. However, the technical ones are the more important and most numerous.*

*It seems that the booster stations system is a problem for the farmers in both canal areas. 91.7% in Sharqaiya and 90% in Beheira said that there were problems in the system. There are, however, some major differences between Sharqaiya and Beheira with regard to the reported nature and magnitude of the problems. First, the proportion of farmers who reported the existence of certain problems is higher in Beheira than it is in Sharqaiya. Second, although the technical problems dominate the picture, a considerably larger portion of Beheira farmers cited one problem of a social nature: disputes over water distribution.*

*The percent distribution of the farmers in both Sharqaiya and Beheira who mentioned the existence of certain problems associated with the booster pump stations is most telling. When asked to rank the problems associated with the booster pump system, farmers in Beheira and Sharqaiya agreed on what the first two problems were, although they differed over the rank. In Beheira, the two biggest problems reported were low water pressure at the ends of the canals (according to 42.3% of respondents) and the irregularity of the electrical current (31.3%). In Sharqaiya, the irregularity of the electrical current was seen as the biggest problem (according to 79.7%) and low water pressure was tied for second place with mechanical problems (23.3%).*

*There was some disagreement over the third most important problem. Beheira farmers focused on a socio-political issue. They considered the withdrawal of the government from the management of the stations to be an important problem. It was ranked as such by about 23.3% of the farmers there. By contrast, Sharqaiya farmers continued their focus on technical issues (electrical current and mechanical problems, as mentioned above). These problems were followed at a distance by the problem of the withdrawal of the government from managing stations – also mentioned by Beheira farmers. Thus, while farmers in the two areas identified booster pump problems in varying proportions, it appears that the apparent disagreement masks a strong consensus about the underlying nature of those problems.*

## 20. Attitudes Toward Irrigation Maintenance

*This section examines farmers' level of satisfaction with the current irrigation system. This examination reveals a pattern of polarization among the four areas. Only in El Minya do we find that the farmers are satisfied with irrigation maintenance. In the other three governorates, the majority is dissatisfied with maintenance. Table 17 shows farmers' responses to the question of whether they are satisfied with regular maintenance. The table clearly shows that an overwhelming majority of farmers in El Minya (91.5%) is satisfied with regular maintenance. In direct opposition to that, the great majority in Dakhalaiya (61.7%), Sharqaiya (75%), and Beheira (56.7%), are not satisfied with regular maintenance. Attitudes, as Table 16 shows, are not radically different with regard to emergency maintenance.*

*This pattern may be explained by the fact that the Beni Ebeid canal area (El Minya) is one of the areas where the irrigation improvement project (IIP) has been implemented. In that area, a continuous flow of water has existed since a major overhaul of the system was undertaken about five or six years ago. Yet, it might be argued that continuous flow also exists in Sharqaiya and Beheira. The one factor that is missing there is a water users association of the sort present in El Minya. A second observation, made clear in the table, is that Sharqaiya farmers are the least satisfied on both fronts. This may be explained not only in economic terms (by the fact that they are the poorest), but also in political terms. That is, their make-up is much more heterogeneous than any of the other three groups in terms of geographic origins of the farmers, the size of holdings, and other socio-economic characteristics. This diversity hampers their collective bargaining potential and their ability to make their voices heard.*

**Table 17**  
**Percent Distribution of Farmers' Attitudes Toward Regular and Emergency Irrigation Maintenance in the Four Canal Areas**

<b>Canal Area</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<b>Type of maintenance and extent of satisfaction</b>				
<i>Regular maintenance</i>				
<i>Satisfied</i>	36.7	91.5	23.3	41.7
<i>No opinion</i>	1.7	----	1.7	1.7
<i>Not satisfied</i>	61.7	8.5	75.0	56.7
<i>Emergency maintenance</i>				
<i>Satisfied</i>	33.3	86.4	20.0	45.0
<i>No opinion</i>	6.7	5.1	1.7	1.7
<i>Not satisfied</i>	60.7	8.5	78.3	53.3

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*A closer look at attitudes toward maintenance reveals more diversity of opinions, especially in Beheira. Table 18 presents the feelings of the farmers about the various aspects of the maintenance process. First, the table shows that, with the exception of the process of weed removal and pitching, there is a higher degree of satisfaction on the part of Beheira farmers. Second, the booster pump stations evoke the most dissatisfaction of all maintenance operations, not only in Beheira but also in Sharqaiya. Third, there was no difference in the overall and detailed pictures of El Minya farmers' feelings about the subject. El Minya farmers show a much higher degree of satisfaction with every aspect of the maintenance operations. Fourth, there is a high degree of similarity between Dakhalaiya and Sharqaiya farmers, in terms of both the quantitative (satisfied/not satisfied) and the qualitative (proportional distribution of responses) aspects of their responses. Farmers in both of those areas have negative opinions about all aspects of maintenance operations.*

*Thus, it appears that the overall quality of maintenance is far from satisfactory and that there is a pressing need for massive improvement on this front.*

**Table 18**  
**Percent Distribution of Farmer's Attitudes Toward the Various Aspects of**  
**Irrigation Maintenance**

Canal Area Attitude toward maintenance aspects	Dakhalaiya	El Minya	Sharqaiya	Beheira
<i>Weed removal</i>				
<i>S</i>	43.3	93.2	36.7	43.3
<i>N</i>	----	----	5.0	1.7
<i>N S</i>	55.0	6.8	58.3	55.0
<i>N R</i>	1.7	----	----	----
<i>Bank maintenance</i>				
<i>S</i>	35.0	89.8	38.3	55.0
<i>N O</i>	5.0	----	1.7	3.3
<i>N S</i>	60.0	10.2	60.0	41.7
<i>N R</i>	----	----	----	----
<i>Gate maintenance</i>				
<i>S</i>	30.0	94.9	41.7	53.3
<i>N O</i>	13.3	1.7	----	3.3
<i>N S</i>	55.0	3.4	58.3	43.3
<i>N R</i>	1.7	----	----	----
<i>Mechanical drainage</i>				
<i>S</i>	38.3	91.4	38.3	50.0
<i>N O</i>	10.0	----	3.3	3.3
<i>N S</i>	48.3	8.6	58.3	46.7
<i>N R</i>	3.3	----	----	----
<i>Bridge maintenance</i>				
<i>S</i>	30.0	91.5	36.7	55.0
<i>N O</i>	11.7	----	6.7	3.3
<i>N S</i>	55.0	8.5	56.7	41.7
<i>N R</i>	3.3	----	----	----
<i>Pitching</i>				
<i>S</i>	28.3	89.8	21.7	40.0
<i>N O</i>	6.7	----	3.3	1.7
<i>N S</i>	65.0	10.2	73.3	36.7
<i>N R</i>	----	----	1.7	21.7
<i>Booster pump stations</i>				
<i>S</i>			16.7	25.0
<i>N O</i>			1.7	1.7
<i>N S</i>			81.7	73.3
<i>NR/NA</i>	100.00	100.00	----	----

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*S= Satisfied*

*N O= No opinion*

*N S= Not satisfied*

*N R= Not reported/No applicable*

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

## ***21. Attitudes Toward the Transfer of Some Parts of the Irrigation Network***

*This section of the report constitutes the core of this research. The idea of the project is simply to transfer the responsibility of managing parts of the irrigation system, namely the branch canal, from the government to the native users, the farmers. This section examines farmers' attitudes on the proposed transfer, and aims to discover whether they believe they could perform the various aspects of irrigation system maintenance, as discussed in the previous section. It further attempts to evaluate their views of their abilities compared to the abilities of both the government and the private sector. In addition, it examines whether the idea of water users associations could be applied at the level of the branch canal, and the causes and conditions that either facilitate or hamper the implementation of this idea. Finally, it takes a look at the views of the farmers of the irrigation engineering district.*

*On the first question, whether farmers think they could perform the maintenance operations discussed earlier, the survey revealed that they have very little confidence in their ability to perform the necessary tasks. This low level of confidence cuts across all canal areas. It does not appear to vary much, although it may be weakly related to the size of holdings, to the particular governorate, or to education*

*Table 19 shows that the great majority of water users lean heavily on the negative side. Two results stand out in the table. First, a relatively higher percentage of farmers in the four canal areas believe that they could perform the task of weed removal by themselves, with Dakhalaiya farmers most confident (33.3% responding positively) and El Minya farmers least confident (20.3%). Second, Beheira farmers consistently show a higher proportion of positive responses across all seven aspects of maintenance. Their rate of positive response is almost double that of the water users in the other three canal areas, except with regards to weed removal. The percentage of those uncertain is extremely small across the waterfront.*

**Table 19**  
**Water Users' Stated Ability to Perform Various Maintenance Operations**

<b>Canal Area</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<b>Maintenance tasks and response categories</b>				
<i>Weed removal</i>				
<i>Yes</i>	33.3	20.3	23.3	28.3
<i>DNK</i>	1.7		1.7	----
<i>NO</i>	65.0	79.7	75.0	71.7
<i>NR</i>	----	----	----	----
<i>Bank maintenance</i>				
<i>Yes</i>	11.7	6.8	15.0	23.3
<i>DNK</i>	3.3	1.7	1.7	----
<i>NO</i>	85.0	91.5	83.3	76.7
<i>NR</i>	----	----	----	----
<i>Gate maintenance</i>				
<i>Yes</i>	6.7	1.7	13.3	23.3
<i>DNK</i>	6.7	1.7	1.7	----
<i>NO</i>	85.0	96.6	85.5	76.6
<i>NR</i>	1.7	----	----	----
<i>Mechanical drainage</i>				
<i>Yes</i>	6.7	3.4	11.7	23.3
<i>DNK</i>	5.0	1.7	1.7	----
<i>NO</i>	85.0	94.9	86.7	76.7
<i>NR</i>	3.3	----	----	----
<i>Bridge maintenance</i>				
<i>Yes</i>	3.3	3.4	11.7	20.0
<i>DNK</i>	3.3	1.7	3.3	----
<i>NO</i>	90.0	94.9	85.0	80.0
<i>NR</i>	3.3	----	----	----
<i>Pitching</i>				
<i>Yes</i>	5.0	5.1	13.3	25.0
<i>DNK</i>	1.7	1.7	3.3	
<i>NO</i>	93.3	91.5	83.3	56.7
<i>NR</i>		1.7	----	18.3
<i>Booster pump station maintenance</i>				
<i>Yes</i>	----	----	11.7	25.0
<i>DNK</i>	----	----	1.7	----
<i>NO</i>	----	----	86.7	75.0
<i>NR/NA</i>	100.00	100.00	----	----

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*A comparison of users' views of their own ability to perform the various maintenance tasks to their view of the abilities of the government and the private sector reveals some interesting variations between the four areas. There is a particularly striking difference between the views of Beheira water users and the farmers in the other governorates. Beheira farmers appear to be almost evenly split in their choice between the government and the private sector as being able to perform the various maintenance operations better than the water users. About 40% of Beheira farmers believe the government is better able to do the job than either the water users or the private sector. Another 40% (about the average across the four areas) believe the private sector could do the job better than either the government or the users. A substantial portion (ranging between 15% on the subject of pitching and 20% on the subject of booster pump stations) believes that the local residents are more qualified than either the private sector or the government to perform maintenance tasks.*

*But as Table 20 shows, the farmers of Dakhalaiya, El Minya and Sharqaiya view matters differently. Both Dakhalaiya and Sharqaiya water users show a relatively stronger belief than El Minya water users in the ability of the private sector to perform maintenance operations, as well as in their own ability. But El Minya water users put all their trust in the government. This belief in government ability holds for Dakhalaiya and Sharqaiya as well, although it varies in degree. It is notable that in El Minya full-fledged water users associations have been operating for almost seven years, yet the users there were the most ready to rely on the government.*

**Table 20**  
**Water Users' Evaluation of the Ability of the Government, the Private Sector,**  
**and the Users to Perform Various Maintenance Tasks**

<b>Canal area</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<b>Maintenance tasks and parties involved</b>				
<i>Weed removal</i>				
<i>The water users</i>	20.0	6.8	10.0	18.3
<i>The government</i>	65.0	88.1	78.3	41.7
<i>The private sector</i>	15.0	5.1	8.3	40.0
<i>DNK</i>	----	----	----	----
<i>NR</i>	----	----	----	----
<i>Bank maintenance</i>				
<i>The water users</i>	8.3	1.7	3.3	16.7
<i>The government</i>	75.0	93.2	80.0	41.7
<i>The private sector</i>	16.7	5.1	13.3	41.7
<i>DNK</i>	----	----	3.3	----
<i>NR</i>	----	----	----	----
<i>Gate maintenance</i>				
<i>The water users</i>	5.0	1.7	3.3	18.3
<i>The government</i>	75.0	93.2	80.0	43.3
<i>The private sector</i>	16.7	5.1	13.3	38.3
<i>DNK</i>	3.3	----	3.3	----
<i>NR</i>	----	----	----	----
<i>Mechanical drainage</i>				
<i>The water users</i>	5.0	1.7	3.3	16.7
<i>The government</i>	76.7	93.2	80.0	43.3
<i>The private sector</i>	16.7	5.1	13.3	40.0
<i>DNK</i>	1.7	----	3.3	----
<i>NR</i>	----	----	----	----
<i>Bridge maintenance</i>				
<i>The water users</i>	3.3	3.4	3.3	16.7
<i>The government</i>	81.7	91.5	80.0	43.3
<i>The private sector</i>	13.3	5.1	13.3	40.0
<i>DNK</i>	1.7	----	3.3	----
<i>NR</i>	----	----	----	----
<i>Pitching</i>				
<i>The water users</i>	5.0	3.4	3.3	15.0
<i>The government</i>	83.3	91.5	76.7	31.7
<i>The private sector</i>	11.7	5.1	15.0	35.0
<i>DNK</i>	----	----	5.0	18.3
<i>NR</i>	----	----	----	----
<i>Booster pump station maintenance</i>				

<i>The water users</i>			3.3	20.0
<i>The government</i>			78.3	40.0
<i>The private sector</i>			15.0	40.0
<i>DNK</i>			3.3	----
<i>NR/NA</i>	100.00	100.00	----	----

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*The water users strongly believe, across all of the maintenance questions, that the government is most able to perform the maintenance operations. The government's proportional share in these questions was uniformly high. It never dipped below 65% in any the three governorates (other than Beheira) on any of the aspects of maintenance. One possible explanation is the fact that it was the government that modernized the infrastructure of the irrigation network. The state thus finds itself in an awkward position: as it modernizes infrastructure in order to enable privatization, it boosts its own image as an efficient service provider. It appears, however, that such an effect may be negated by education, as is evident in the case of Dakhalaiya.*

*The same pattern held when users were asked about cost. The majority believed that the government could perform the tasks more cheaply, except in Beheira. Table 21 shows that the percentage of users who think that the local residents could do the job more cheaply is slightly higher than the percentage of users who think the local residents could do the job well. There is also a considerably higher percentage of those who are uncertain about this issue.*

**Table 21**  
**Water Users' Opinions on Whether They Could Perform Maintenance**  
**Operations Cheaper than the Government**

<b>Canal Area</b> <b>Maintenance tasks, response categories</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<i>Weed removal</i>				
<i>Yes</i>	<i>26.7</i>	<i>11.9</i>	<i>15.0</i>	<i>56.7</i>
<i>DNK</i>	<i>11.7</i>	<i>1.7</i>	<i>8.3</i>	<i>5.0</i>
<i>NO</i>	<i>61.7</i>	<i>86.4</i>	<i>76.7</i>	<i>38.3</i>
<i>NR</i>	<i>----</i>	<i>----</i>	<i>----</i>	<i>----</i>
<i>Bank maintenance</i>				
<i>Yes</i>	<i>13.3</i>	<i>8.5</i>	<i>11.7</i>	<i>55.0</i>
<i>DNK</i>	<i>11.7</i>	<i>3.4</i>	<i>10.0</i>	<i>5.0</i>
<i>NO</i>	<i>75.0</i>	<i>88.1</i>	<i>78.3</i>	<i>40.0</i>
<i>NR</i>	<i>----</i>	<i>----</i>	<i>----</i>	<i>----</i>

<i>Gate maintenance</i>				
Yes	5.0	5.1	11.7	55.0
DNK	16.7	3.4	10.0	1.7
NO	78.3	91.5	78.3	40.0
NR	----	----	----	3.3
<i>Mechanical drainage</i>				
Yes	6.7	5.1	11.7	55.0
DNK	13.3	3.4	10.0	5.0
NO	80.0	91.5	78.3	40.0
NR	----	----	----	----
<i>Bridge maintenance</i>				
Yes	5.0	5.1	11.7	55.0
DNK	13.3	3.4	10.0	6.7
NO	81.7	91.5	78.3	38.3
NR	----	----	----	----
<i>Pitching</i>				
Yes	5.0	6.8	11.7	50.0
DNK	13.3	3.4	10.0	21.7
NO	81.7	89.8	78.3	28.3
NR	----	----	----	----
<i>Booster pump station maintenance</i>				
Yes			10.0	55.0
DNK			10.0	5.0
NO			80.0	40.0
NR	100.00	100.00		

Source: Survey Results (**Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.**)

*The high proportion of those who think that the water users could not do the job cheaper than the government is not surprising, considering that, until now, farmers have never*

*carried the financial costs of the maintenance operations beyond their fields. In other words, their actual cost to date has been zero, and they may think that any change could only be more expensive for them. This line of logic, however, does not explain the relatively high proportions of water users in Beheira who think that they could do it cheaper than the government. Venturing into educated guess, the author's interpretation is that with their higher educational level, Beheira farmers could read the question as comparing two hypothetical situations; the others saw it as an actual one. It is possible that with their larger holdings, higher levels of education, and their professional profiles, Beheira water users would rather keep the government at bay whenever possible, while the poorer farmers have a tendency to depend on it more.*

*When asked whether the local residents are able to carry out the tasks in less time than the private sector, the majority of the farmers in the four canal areas believed that the private sector is more efficient than they are. As indicated by Table 22, there is very little variation between the four areas in this respect. However, it is interesting to note that in the case of El Minya, in the absence of "government" as a potential response the farmers show a higher degree of confidence (2-3 times higher) in their ability to perform the tasks and there is also a sizeable portion that are uncertain. This seems to confirm our earlier conclusion about the relationship between poverty and dependence on the government. By the same token, a higher percentage of Beheira water users seem to believe in the efficiency of the private sector.*

**Table 22**  
**Water Users' Opinions on Whether They Could Perform Maintenance**  
**Operations Cheaper than the Private Sector**

Canal Area	Dakhalaiya	El Minya	Sharqaiya	Beheira
Maintenance tasks, response categories				

<i>Weed removal</i>				
<i>Yes</i>	<i>18.3</i>	<i>16.9</i>	<i>10.0</i>	<i>25.7</i>
<i>DNK</i>	<i>13.3</i>	<i>16.9</i>	<i>15.0</i>	<i>3.3</i>
<i>NO</i>	<i>68.3</i>	<i>66.1</i>	<i>75.0</i>	<i>70.0</i>
<i>NR</i>	<i>----</i>	<i>----</i>	<i>----</i>	<i>----</i>
<i>Bank maintenance</i>				
<i>Yes</i>	<i>10.0</i>	<i>13.6</i>	<i>13.3</i>	<i>25.0</i>
<i>DNK</i>	<i>13.3</i>	<i>18.6</i>	<i>15.0</i>	<i>3.3</i>
<i>NO</i>	<i>76.7</i>	<i>66.1</i>	<i>71.7</i>	<i>71.7</i>
<i>NR</i>	<i>----</i>	<i>1.7</i>	<i>----</i>	<i>----</i>
<i>Gate maintenance</i>				
<i>Yes</i>	<i>8.3</i>	<i>11.9</i>	<i>13.3</i>	<i>25.0</i>
<i>DNK</i>	<i>15.0</i>	<i>18.6</i>	<i>15.0</i>	<i>3.3</i>
<i>NO</i>	<i>76.7</i>	<i>69.5</i>	<i>71.7</i>	<i>71.7</i>
<i>NR</i>	<i>----</i>	<i>----</i>	<i>----</i>	<i>----</i>
<i>Mechanical drainage</i>				
<i>Yes</i>	<i>10.0</i>	<i>10.2</i>	<i>11.7</i>	<i>25.0</i>
<i>DNK</i>	<i>16.7</i>	<i>18.6</i>	<i>15.0</i>	<i>3.3</i>
<i>NO</i>	<i>73.3</i>	<i>71.2</i>	<i>73.3</i>	<i>71.7</i>
<i>NR</i>	<i>----</i>	<i>----</i>	<i>----</i>	<i>----</i>
<i>Bridge maintenance</i>				
<i>Yes</i>	<i>8.3</i>	<i>10.2</i>	<i>11.7</i>	<i>25.0</i>
<i>DNK</i>	<i>20.0</i>	<i>18.6</i>	<i>15.0</i>	<i>71.7</i>
<i>NO</i>	<i>71.7</i>	<i>69.5</i>	<i>73.3</i>	<i>3.3</i>
<i>NR</i>	<i>----</i>	<i>1.7</i>	<i>----</i>	<i>----</i>
<i>Pitching</i>				
<i>Yes</i>	<i>8.3</i>	<i>13.6</i>	<i>11.7</i>	<i>23.3</i>
<i>DNK</i>	<i>18.3</i>	<i>18.6</i>	<i>15.0</i>	<i>18.3</i>
<i>NO</i>	<i>73.3</i>	<i>67.8</i>	<i>73.3</i>	<i>58.3</i>
<i>NR</i>	<i>----</i>	<i>----</i>		
<i>Booster pump station</i>				

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<i>maintenance</i>				
<i>Yes</i>			<i>11.7</i>	<i>25.0</i>
<i>DNK</i>			<i>15.0</i>	<i>3.3</i>
<i>NO</i>			<i>73.3</i>	<i>71.7</i>
<i>NR</i>	<i>100.00</i>	<i>100.00</i>	<i>----</i>	<i>----</i>

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*With the exception of pitching, where 58% believed that the private sector could do the job in less time than the local residents, between 70% and 71.7% regarded the private sector as being more able to perform all the maintenance tasks in less time. However, as far as pitching is concerned, the water users were not necessarily more confident in the abilities of the private sector; there was simply a much higher portion listing themselves as “uncertain” in this category.*

*Water users in the four canal areas are polarized in their attitudes on whether they would do better than the government in accounting for crop water requirements while doing maintenance operations. Old lands farmers were on one side of the fence, and the new lands farmers were on the other side. As Table 23 shows, the latter were more likely to believe that farmers would be more sensitive to crop water requirements, and this held true for all operations in which water flow is interrupted by maintenance, as is the case during the winter blockage (Al-Sada Al-Shetwayia). By contrast, farmers in Dakhalaiya and El Minya took the opposite position, answering that the government would be more sensitive.*

**Table 23**  
**Percent Distribution of Water Users’ Attitudes on Whether They Would Show More Care for Crop Water Requirements During Maintenance than the Government Does**

<b>Canal Area</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
-------------------	-------------------	-----------------	------------------	----------------

<i>Bank maintenance</i>				
Yes	20.0	13.6	63.3	68.3
DNK	23.3	1.7	3.3	6.7
NO	55.0	84.7	33.3	25.0
NR	1.7	----	----	----
<i>Gate maintenance</i>				
Yes	16.7	11.9	65.0	68.3
DNK	25.0	1.7	3.3	6.7
NO	58.3	86.4	31.7	25.0
NR	----	----	----	
<i>Bridge maintenance</i>				
Yes	16.7	13.6	63.3	68.3
DNK	25.0	1.7	3.3	6.7
NO	58.3	84.7	33.3	25.0
NR	----	----	----	----
<i>Pitching</i>				
Yes	20.0	15.3	65.0	65.0
DNK	21.7	1.7	3.3	20.0
NO	58.3	81.4	31.7	15.0
NR	----	1.7	----	

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*Again, El Minya farmers, in percentages ranging between 81% and 86%, did not believe users would perform better than government. In Dakhalaiya, the situation was less polarized, with between 55% and 58% saying that the government would take better care. In Sharqaiya and Beheira, about two thirds believed across the board that the local residents would take better care. There is also a notably high degree of uncertainty in Dakhalaiya (about 22%), four times that in Beheira, about 7 times that noted in Sharqaiya, and 15 times that in El Minya.*

*In sum, the analysis of water users' attitudes shows what might be called the triumph of tradition over modernization. Users would be content for the government's role at the branch canal level to persist as it has over the thousands of years of the history of irrigation in Egypt. Only minor changes in attitude seem to result from changes in the background socio-economic characteristics of the users.*

*This rigidity in attitudes is reinforced by rumors that the government intends to sell water to the farmer. The minister of agriculture himself had to officially deny these rumors and made headlines when he was quoted as saying, "It is not possible at all to sell water to the farmers, especially in the old lands. ... There is not a government that dares to do that. ... The state pays a lot to make irrigation water available, but the Egyptian peasant who lived on the banks of the Nile for thousands of years does not absorb the idea of paying for water. ... Water pricing for big landlords in the new lands is currently under investigation." (Akhbar al Youm 20/1/2001: 1,6)*

*Although intended to allay farmers' fears, the statement (and particularly the last sentence) had the opposite effect. "It is going to start in the new lands, and then comes our turn," they reason.*

*With this worry in mind, the overwhelming majority of farmers believe that the government should never lift its hands from maintenance operations. To put it in figures, those who believed so stood at a minimum of 80% in Beheira and a maximum of 90% in Sharqaiya. 84.7% in El Minya and 81.7% in Dakhalaiya believed the government should keep control of the branch canals.*

*When asked about specific maintenance operations, there was not a single operation where less than 65% of users thought the government should continue management. Table 24 details the opinions of water users on the operations the government should continue to perform. The clear polarization of attitudes is notable here, especially in comparison to the other tables that measured the attitudes of farmers toward the*

*various spheres of the project and the various aspects of maintenance. In the previous tables, there were always portions that were undecided. In some cases those undecided made up about one quarter of the water users (see Table 21),*

**Table 24**  
**Percent Distribution of Water Users' Attitudes on the Government's**  
**Continued Performance of Maintenance Operations**

Canal Area	Dakhalaiya	El Minya	Sharqaiya	Beheira
Operations and response categories				

<i>Weed removal</i>				
<i>Yes</i>	<i>73.5</i>	<i>71.2</i>	<i>82.1</i>	<i>73.7</i>
<i>DNK</i>				
<i>NO</i>	<i>26.5</i>	<i>28.8</i>	<i>17.9</i>	<i>16.3</i>
<i>NR</i>				
<i>Bank maintenance</i>				
<i>Yes</i>	<i>91.8</i>	<i>82.7</i>	<i>83.9</i>	<i>81.6</i>
<i>DNK</i>				
<i>NO</i>	<i>8.2</i>	<i>17.3</i>	<i>16.1</i>	<i>18.4</i>
<i>NR</i>				
<i>Gate maintenance</i>				
<i>Yes</i>	<i>91.8</i>	<i>84.6</i>	<i>83.9</i>	<i>83.7</i>
<i>DNK</i>	<i>4.1</i>			
<i>NO</i>	<i>4.1</i>	<i>15.4</i>	<i>16.1</i>	<i>16.3</i>
<i>NR</i>	<i>----</i>			
<i>Mechanical drainage</i>				
<i>Yes</i>	<i>91.8</i>	<i>84.6</i>	<i>87.5</i>	<i>83.7</i>
<i>DNK</i>				
<i>NO</i>	<i>8.2</i>	<i>15.4</i>	<i>12.5</i>	<i>16.3</i>
<i>NR</i>				
<i>Bridge maintenance</i>				
<i>Yes</i>	<i>89.8</i>	<i>86.5</i>	<i>82.1</i>	<i>81.6</i>
<i>DNK</i>	<i>4.1</i>			
<i>NO</i>	<i>6.1</i>	<i>13.5</i>	<i>17.9</i>	<i>18.4</i>
<i>NR</i>	<i>----</i>	<i>----</i>	<i>----</i>	<i>----</i>
<i>Pitching</i>				
<i>Yes</i>	<i>91.7</i>	<i>84.6</i>	<i>82.1</i>	<i>65.3</i>
<i>DNK</i>	<i>2.1</i>	<i>----</i>		<i>18.4</i>
<i>NO</i>	<i>6.3</i>	<i>15.4</i>	<i>17.9</i>	<i>16.3</i>
<i>NR</i>	<i>----</i>	<i>----</i>	<i>----</i>	

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<i>Booster pump station maintenance</i>				
<i>Yes</i>			83.6	81.6
<i>DNK</i>				
<i>NO</i>			16.4	18.4
<i>NR</i>	100.00	100.00	----	----

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*In other tables, those undecided constituted about 10-15%. However, in Table 22, there is almost a complete absence of uncertainty – in only one category do those undecided proportionally count for something (18.4% in pitching). In other words, there is no middle ground here. The farmers have strong feelings about where their interests lie, and they are convinced it is in the government's continued performance of the maintenance operations.*

*The water users do not lack a rationale for their position. Table 25 gives the detailed percent distribution and the rank of each reason farmers gave for the government not to abandon responsibility for maintenance operations. Between 64.4% (El Minya) and 83.3% (Sharqaiya) of respondents in the four areas said the government has greater technical expertise. Between 63.3% (Dakhalaiya) and 80% (Beheira) said the government has the financial resources to handle maintenance.*

*Table 25*  
**Percent Distribution of Farmers' Reasons for the Government to Continue  
Performance of Maintenance Operations**

Canal area	Dakhalaiya	El Minya	Sharqaiya	Beheira
Operation and response category				

	%	Rank	%	Rank	%	Rank	%	Rank
<i>The government has the technical know-how</i>								
Yes	71.7	1	4.4	2	3.3	1	70.0	2
No	28.3		5.6		6.7		30.0	
<i>The government has the legal authority to execute procedures</i>								
Yes	36.7	4	9.2	3	1.7	4	46.7	3
No	63.3		90.8		8.3		53.3	
<i>To avoid disputes among the local residents</i>								
Yes	46.7	3	7.1	4	3.3	5	18.3	5
No	53.3		92.9		6.6		81.7	
<i>The state collects tax revenue; it should work for it</i>								
Yes	71.7	6	3.6	8	6.7	3	13.3	6
No	28.3		96.4		3.3		86.7	
<i>The funds are used to the state doing every thing</i>								
Yes	10.0	7	5.4	5	5.0	6	11.7	7
No	90.0		94.6		5.0		88.3	
<i>To avoid local residents' abuse of the authority given to them</i>								
Yes	25.0	5	2.0	6	8.3	8	11.7	7
No	75.0		98.0		91.7		88.3	
<i>The lack of the necessary legislation to enable the NGOs to perform such tasks</i>								
Yes								

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No	1.7 98.3	8	5.3 4.7	7	3.3 6.7	7	23.3 76.7	4
The government has the financial means to perform the tasks								
Yes	63.3	2	7.8	1	0.0	2	76.7	1
No	36.7		2.2		0.0		23.3	

Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)

Despite the heavy reliance on the government, few farmers admitted to “being used to the state doing everything.” The majority of water users in the four areas, between 74.6% in El Minya and 90% in Dakhalaiya, refuse this idea. The author takes this to mean that the state is viewed by water users in the light of the national capabilities it has, not as a provider. This brings to the fore the conditions under which a project such as the transfer of irrigation maintenance may be implemented. It is to this issue that we now turn.

## **22. Irrigation Transfer Project: Organizational Frame, Implementation Conditions, and Potential Impact**

*In attempting to develop the irrigation system, the ministry of irrigation created water users associations (WUAs) to act as an organizational frame for management at the mesqa level. It was subsequently hoped that this model might also be applied at the branch canal level. This section examines the potential impact of such a policy, as well as the conditions under which it might be implemented. Questions were therefore asked about the WUAs, the applicability of the idea at the branch canal level, the conditions necessary to implement the idea, and the expected effects of implementation.*

*The survey showed that a considerably higher percentage of water users in El Minya and Beheira knew of the WUAs than was the case in Sharqaiya and Dakhalaiya. Surprisingly, despite the fact that the WUAs have been active in Beni Ebeid for about seven years, only 52.5% of the El Minya farmers were aware of the WUAs. 56.7% of the respondents in Beheira were aware of the associations. The other two governorates lagged behind, with 25% in Dakhalaiya and 23.3% in Sharqaiya having heard of the WUAs. Of those who knew of the WUAs, the majority were not members, either because the system was not in existence or they probably lacked the information necessary to join. In El Minya, where the system is in full operation, 51.5% of those aware of the WUA were also members.*

*The effective implementation of the improved irrigation project (IIP) and its organizational aspect, represented by the WUAs, speaks for itself. A huge majority (96.6%) of the farmers in El Minya believed that the irrigation district distributed water fairly among the users. But in Beheira, only 28.3% believed that was the case. The numbers were even lower in the other two areas: 25% in Sharqaiya and 23.7% in Dakhalaiya.*

*But the fact that the IIP and its concomitant WUA system have had such an impact on the attitudes of the farmers toward water distribution does not translate into automatic acceptance of the idea at the branch canal level. In fact, El Minya, which had the highest degree of satisfaction with water distribution, had one of the lowest rates of acceptance of the applicability of the idea to the branch canal level (35.6%). Dakhalaiya showed both the lowest rate of satisfaction with water distribution and the least conviction in the applicability of the idea to the branch canal level (20%). Both Beheira (64.9%) and Sharqaiya water users (41.7%) showed higher rates of acceptance of the idea.*

*A closer look at the objections of the water users to the irrigation transfer project reveals interesting features. Users in all four areas agree on the first objection: the existence of too many disputes among the native water users. Oddly enough, the percentage citing this objection was highest in the old lands, where established traditions of irrigation and strong kinship ties have cemented the relations between farmers.*

*Dakhalaiya was especially extreme in this regard. This may be because the governorate is at the end of the line and it lacks WUAs. But that would not explain the situation in El Minya, where a higher percent of the sample there also believed that user disputes would undermine the project. But an equal percentage of El Minya users said the project would not work because different users have different sorts of problems and they would lack unity. To the author, this suggests the presence of tension within the village. Beni Ebeid is one of the strongholds of Islamic militants in El Minya, and probably political disagreement cuts across the economic interests and social fabric of the village. Table 26 presents the detailed percent distribution and rank of the various problems that the farmers in the four areas say would undermine the project at the branch canal level. It is interesting to note that the second most common objection is similar to the first; that is, the lack of cooperation among the local residents.*

**Table 26**  
**Percent Distribution and Rank of the Reasons Water Users**  
**Said IIP was not Practicable at the Branch Canal Level**

Canal area	Dakhalaiya	El Minya	Sharqaiya	Beheira
Causes of inapplicability				

	%	Rank	%	Rank	%	Rank	%	Rank
Too many disputes among the local residents								
Yes	65.0	1	39.0	1	36.7	1	18.3	1
Lack of cooperation among the local residents								
Yes	35.0	2	37.3	3	28.3	2	15.0	2
Increase potential disputes between villages								
Yes	15.0	4	11.9	6	1.7	6	1.7	6
Lack of legal organizational frame								
Yes	10.0	5	16.9	5	13.3	4	10.0	4
Local residents have problems of different nature and lack unity								
Yes	23.3	3	39.0	1	20.0	3	5.0	5
DNK	1.7	6	23.7	4	5.0	5	11.7	3

Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)

At this point, the similarity in response patterns between the four governorates comes to an end, except for the fact that the two old lands areas have ranked the lack of an organizational frame to execute the project in fifth place, while the two new lands areas placed it fourth. There is also high percentage that does not know why such a project should not be applied at the branch canal level. This is especially the case in El Minya (23.7%) and Beheira (11.7%). What then, are the conditions under which

*the idea might be put into practice? In addressing this question, no clear pattern of consensus or even relative agreement can be detected. Respondents in the three governorates were not unified on any single response. Table 27 gives the percent distribution, the rank, and the sum of ranks of each condition by the sample in each governorate.*

**Table 27**  
**Percent Distribution, Rank Order, and Sum of Ranks of Selected Conditions**  
**That May Allow Implementation of the Irrigation Transfer Project**

Canal area Conditions & responses	Dakhalaiya	El Minya	Sharqaiya	Beheira	Sum of ranks

	%	Rank	%	Rank	%	Rank	%	Rank	
<i>Continuous flow of water</i>									
Yes	75.0	1	51.5	5	41.8	1	79.2	3	10
No	25.0		48.5		58.2		20.8		
<i>Raise water level in canals</i>									
Yes	50.0	2	39.4	7	32.1	5	66.7	6	20
No	50.0		60.6		67.9		33.3		
<i>Issue legislation to activate the authorities of the WUAs</i>									
Yes	38.3	3	54.1	3	33.9	4	86.7	1	11
No	61.7		45.9		66.1		13.3		
<i>Presence of government representative in the WUA</i>									
Yes	28.3	5	55.3	2	37.5	3	74.2	4	15
No	71.7		44.7		65.5		25.8		
<i>The availability of maintenance requirements</i>									
Yes	18.3	6	48.5	6	19.6	6	77.4	4	22
No	81.7		51.5		80.4		22.6		
<i>The availability of technical assistance on the part of the government</i>									
Yes	38.3	3	54.9	1	41.1	1	85.0	1	7
No	61.7		45.1		58.9		15.0		
<i>Training of the WUAs members</i>									
Yes	28.3	5	53.8	7	17.9	7	61.9	7	23
No	71.7		46.2		82.1		38.1		

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*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*Despite the apparent divergence in the table, if we reclassify the top two ranked conditions under the broad categories of technical versus social/organizational conditions, an interesting pattern emerges. In Dakhalaiya, El Minya, and Sharqaiya, the top two conditions were technical. Social conditions were seen as having tertiary importance at most. By contrast, Beheira users placed a premium on the social dimension, ranking the existence of a legal frame that activates the authority of WUAs as most important, followed by two technical concerns.*

*It is possible to overlook the variations from one governorate to another by considering the sum of ranks accorded to each condition by the four samples. Any given condition could have a sum score ranging between 4 points (if ranked number one by all four samples) and 28 (if ranked 7 by all four). Thus, the sum of ranks reflects the order of importance of the condition across the entire sample.*

**Table 28**  
**Order and Nature of Conditions That Could Allow for**  
**the Implementation of the Irrigation Transfer Project**

Conditions	Rank	Nature of condition
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<i>The availability of technical assistance from the government</i>	<i>1</i>	<i>Technical</i>
<i>Continuous flow of water</i>	<i>2</i>	<i>Technical</i>
<i>Issuance of legislation to activate the authority of the WUAs</i>	<i>3</i>	<i>Social/Organizational</i>
<i>The presence of a government representative in the WUA</i>	<i>4</i>	<i>Social/Organizational</i>
<i>Raise water level in canals</i>	<i>5</i>	<i>Technical</i>
<i>The availability of maintenance requirements</i>	<i>6</i>	<i>Technical</i>
<i>Training the WUA members</i>	<i>7</i>	<i>Social</i>

*Source: Derived from Table 25 (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

Table 28 shows the conditions ordered according to their rank and nature (i.e. technical or social/organizational). As is evident from the table, users believe the implementation of the irrigation transfer project will require a major structural change in the way the current irrigation system operates at the branch canal level.

What are the anticipated outcomes of the irrigation transfer project on the part of water users? The questionnaire included two questions aimed at examining this issue. The first of these questions was phrased using the word "local residents." "If we transfer the management of ..... branch canal to the local residents, do you think that this will lead to .....?" As shown in Table 29, the responses to this phrasing were not favorable, except in Beheira. In Dakhalaiya, El Minya and Sharqaiya, the farmers did not think that such a move would lead to any improvement in the availability of water,

*to improved maintenance, or to increased crop yield. Nor did they believe that water distribution would be more equitable. The only exception was Sharqaiya farmers, with respect to the issue of greater coordination between maintenance and cultivation timing. Again, it is worth noting that a sizable percentage was uncertain. The picture changed dramatically when the question was rephrased to specify the WUAs as the form of organization to be applied at the branch canal level.*

**Table 29**  
**Percent Distribution of Water Users' Responses to the Question Concerning the Impact of Transferring Management of the Branch Canal**

Canal area	Dakhalaiya	El Minya	Sharqaiya	Beheira
Response variables and response categories				

<i>Improve the availability of water required for crops</i>				
<i>Yes</i>	<i>26.7</i>	<i>22.0</i>	<i>38.3</i>	<i>63.3</i>
<i>DNK</i>	<i>10.0</i>	<i>3.4</i>	<i>10.0</i>	<i>5.0</i>
<i>No</i>	<i>63.3</i>	<i>74.6</i>	<i>51.7</i>	<i>31.7</i>
<i>Improve maintenance operations</i>				
<i>Yes</i>	<i>16.9</i>	<i>16.9</i>	<i>38.3</i>	<i>63.3</i>
<i>DNK</i>	<i>15.3</i>	<i>5.1</i>	<i>11.7</i>	<i>3.3</i>
<i>No</i>	<i>67.8</i>	<i>78.0</i>	<i>50.0</i>	<i>33.3</i>
<i>Raise productivity per feddan</i>				
<i>Yes</i>	<i>23.7</i>	<i>18.6</i>	<i>36.7</i>	<i>60.0</i>
<i>DNK</i>	<i>20.3</i>	<i>3.4</i>	<i>10.0</i>	<i>5.0</i>
<i>No</i>	<i>55.9</i>	<i>78.0</i>	<i>53.3</i>	<i>35.0</i>
<i>Will lead to more coordination between maintenance &amp; cultivation timing</i>				
<i>Yes</i>	<i>28.3</i>	<i>20.3</i>	<i>56.7</i>	<i>68.3</i>
<i>DNK</i>	<i>16.7</i>	<i>5.1</i>	<i>13.3</i>	<i>3.3</i>
<i>No</i>	<i>55.0</i>	<i>74.6</i>	<i>30.0</i>	<i>28.3</i>
<i>Will make water distribution among people more fair</i>				
<i>Yes</i>	<i>25.4</i>	<i>16.9</i>	<i>40.0</i>	<i>61.7</i>
<i>DNK</i>	<i>15.3</i>	<i>3.4</i>	<i>8.3</i>	<i>3.3</i>
<i>No</i>	<i>59.3</i>	<i>79.7</i>	<i>51.7</i>	<i>35.0</i>

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*As indicated earlier, only two of the response variables under this question are directly comparable to the ones in the previous table. The data in Table 30 indicate an astounding change in the views of farmers once the word “WUA” is included. The altered phrasing changed the results by a full 24%, using mean percentage points attained by these variables as a basis for comparison. The change was 32.8% for the question regarding the availability of water.*

**Table 30**  
**Percent Distribution of Water Users’ Expectations**  
**Regarding the Impact of WUAs at the Branch Canal Level**

Canal area	Dakhalaiya	El Minya	Sharqaiya	Beheira
Response variables and response categories				

<i>Savings in water consumption</i>				
Yes	57.1	63.6	70.8	87.8
DNK	4.8	----	4.2	
No	38.1	36.4	25.0	12.2
<i>Improve amount of water available to water users*</i>				
Yes	52.4	68.2	75.0	90.2
DNK	4.8	----	4.2	----
No	42.9	31.8	20.8	9.8
<i>Improve maintenance*</i>				
Yes	42.9	68.2	70.8	87.8
DNK	9.5	----	4.2	----
No	47.6	31.8	25.0	12.2
<i>Reduce conflicts among the local residents</i>				
Yes	61.9	68.2	70.8	90.2
DNK	4.8	----	4.2	----
No	33.3	31.8	25.0	9.8

*\* Compare to items 1,2 in Table 27*

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*The table shows Dakhalaiya farmers to be more skeptical than the rest. Nevertheless, they lean for the most part toward the positive side, except with regard to the anticipated improvement in maintenance. Nonetheless, the 42.9% amounts is an increase of 14.6% over the 28.3% in the previous table. By contrast, Beheira farmers appear to be the most optimistic. There was also a decline in the number of respondents answering “undecided.” In sum, one cannot overstate the importance of identifying*

*the WUA as an organizational principal in enhancing the chances of the water users accepting management transfer of the branch canals.*

*It is clear from the foregoing analysis that the IIP does not stand on its own in the eyes of the water users. The implementation of this project requires not just technical modifications in the current irrigation system, but also structural changes in the social organization of the management. Such changes should not be regarded as secondary to the technical ones; rather they should go hand in hand. If these considerations are ignored, the proposed project is not likely to succeed.*

## **23. Agricultural Drainage**

*At the outset of this section, it is important to note that only the old lands have a drainage system. A drainage system is yet to be constructed in the new lands.*

*Therefore, the nature of the questions asked in both areas was entirely different. We will examine the issues related to agricultural drainage in the old lands first, then turn to the new ones.*

*To start with, a great majority of water users in both Dakhalaiya (78.3%) and El Minya (89.8%) are not convinced that the drainage district in their respective areas manages drains well. The cause for such beliefs, however, appears to be different in each area.*

*In Dakhalaiya, the most often-stated reason was the negligence of officials (80%), followed by the clogging of tile drains (75%). The lack of coordination between the timing of maintenance and that of agriculture was third (66.7%). But the lack of coordination was the top reason in El Minya (100%), with officials' negligence second (66.7%) and the need to replace the drainage network third (50%). The three other reasons tied for fourth (at 25% each): water logging, dirty drains, and clogging of the drains. Water logging was fourth in Dakhalaiya (50%), followed by dirty drains. The need to replace the drainage network was mentioned by 6.7% and 1.7%, respectively.*

*It seems, however, that it is not only the structural properties of the system and its management that are to blame for drainage problems. Farmers in Dakhalaiya and El Minya admit that the local residents do things that can undermine the system's performance. In Dakhalaiya, 50% answered to that effect; of them, about 95.2% mentioned disposal of garbage as one problematic pattern of behavior, while the remaining 4.8% mentioned disposing of dead animals. In El Minya, where only 27.1% said the local residents abuse the drainage system, 37.9% of those mentioned the*

*disposal of garbage and another 27.6% cited the disposal of dead animals. Another 20.7% said that farmers resort to blocking the tile drainage pipes for inspection reasons. About 13.8 % cited the local residents' disposal of human waste as another abuse of the system.*

*When asked explicitly if there are some landlords in their villages who block tile drainage pipes, 31% of the farmers in Dakhalaiya (17 individuals) answered yes. The comparable figure for El Minya was 14.3% (9 people). These figures should not be seen as contradicting the previously noted figure of 20.7% who stated that drainage pipes were being blocked in El Minya. In fact, the 14.3% is larger in absolute terms than the 20.7%. They are just proportioned to different Ns. In the first case N equaled 16 (the number of people who agreed that local residents contribute to drainage problems), in the second case it was 59 (all respondents in El Minya).*

*Farmers in Dakhalaiya and El Minya do not seem to be convinced that the transfer of drain maintenance to the local residents is going to bring about any positive results. Table 31 shows the percent distribution of the farmers' responses to some questions about the anticipated impacts of the transfer of the drainage system. In Dakhalaiya, 62% of the landlords disagree with the idea that the system will improve as a result of them assuming responsibility for its maintenance. The comparable figure for El Minya was 88.6%, almost 27% higher. Farmers in both governorates agreed in the largest percentages that transfer would not reduce the negligence of officials.*

***Table 31***  
**Percent Distribution of Farmers' Responses to Questions on Impact  
of the Transfer of Management and Maintenance of the Drainage System**

	<b>Dakhelaiya</b>	<b>El Minya</b>
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<i>Improve the standard of service</i>		
<i>Yes</i>	<i>6.8</i>	<i>6.8</i>
<i>DNK</i>	<i>16.9</i>	<i>91.5</i>
<i>No</i>	<i>76.3</i>	<i>1.7</i>
<i>Improve productivity per feddan</i>		
<i>Yes</i>	<i>10.0</i>	<i>8.5</i>
<i>DNK</i>	<i>21.7</i>	<i>1.7</i>
<i>No</i>	<i>68.3</i>	<i>89.8</i>
<i>Reduce the cost of constructing drainage network</i>		
<i>Yes</i>	<i>10.0</i>	<i>6.8</i>
<i>DNK</i>	<i>31.7</i>	<i>1.7</i>
<i>No</i>	<i>58.3</i>	<i>91.5</i>
<i>Reduce the cost of maintenance</i>		
<i>Yes</i>	<i>11.9</i>	<i>8.5</i>
<i>DNK</i>	<i>27.1</i>	<i>3.4</i>
<i>No</i>	<i>61.0</i>	<i>88.1</i>
<i>Increase the life expectancy of the drainage network</i>		
<i>Yes</i>		
<i>DNK</i>	<i>8.3</i>	<i>8.5</i>
<i>No</i>	<i>31.7</i>	<i>3.4</i>
	<i>60.0</i>	<i>88.1</i>
<i>Reduce the level of underground water</i>		
<i>Yes</i>	<i>8.3</i>	<i>8.5</i>
<i>DNK</i>	<i>33.3</i>	<i>5.1</i>
<i>No</i>	<i>58.3</i>	<i>86.4</i>
<i>Increase the level of cleanliness of surface drains</i>		
<i>Yes</i>	<i>16.7</i>	<i>6.8</i>
<i>DNK</i>	<i>25.0</i>	<i>3.4</i>
<i>No</i>	<i>58.3</i>	<i>89.8</i>

<i>Reduce the negligence of the officials</i>		
<i>Yes</i>	<i>20.0</i>	<i>12.1</i>
<i>DNK</i>	<i>21.7</i>	<i>3.4</i>
<i>No</i>	<i>58.3</i>	<i>84.5</i>
<i>Reduce the maintenance time</i>		
<i>Yes</i>	<i>10.0</i>	<i>6.8</i>
<i>DNK</i>	<i>26.7</i>	<i>3.4</i>
<i>No</i>	<i>63.3</i>	<i>89.8</i>
<i>Increase coordination between maintenance and cultivation season</i>		
<i>Yes</i>	<i>18.3</i>	<i>10.2</i>
<i>DNK</i>	<i>23.3</i>	<i>3.4</i>
<i>No</i>	<i>58.3</i>	<i>86.4</i>

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*The second most common response was for farmers in both areas to disagree that transfer is going to allow greater coordination between the timing of cultivation and maintenance.*

*The reasons for such responses are not hard to see. Drainage is less important to farmers, and we have already seen their resistance to the idea of transferring maintenance of the branch canal. Other conditions would have to be met for the farmers to accept the idea. We may assume that if similar conditions were met in the case of the drains, the idea might be sellable. However, the author expects fewer acceptances for drain transfer than for transfer of the branch canals.*

*90% of the landlords in Dakhalaiya, and 88.1% in El Minya, said they still pay for the cost of tile drainage. 66.1% of those in Dakhalaiya and 84.5% in El Minya reported they were paying less than LE 200 per year. Another 15.2% and 11.5% in the two governorates said they were paying between LE 200 and LE 500 per year. 18.7% in Dakhalaiya and 4% in El Minya reported paying more than LE 500 per year to cover the cost of tile drainage. On the average, farmers in Dakhalaiya said they were paying LE 270.60 per year for tile drainage, almost 2.23 times what their El Minya counterparts were paying. El Minya farmers reported paying, on the average, a little more than LE 121 per year.*

*A majority of the farmers in both Dakhalaiya (55.6%), and El Minya (47.2%) believe they pay too much for tile drainage. By contrast, 33.3% and 35.8% think they pay a fair price, while 13.25% in El Minya and only 7.4% in Dakhalaiya think they pay too little. Despite this, the majority of farmers in both governorates strongly believe that tile drainage has benefited the farmers. 84.9% in Dakhalaiya and 83.6% in El Minya agreed this was the case.*

*We turn now to the situation of drainage in the reclaimed lands, Sharqaiya and Beheira.*

*The majority in the two areas (93.2% and 87.5%, respectively), said there is no drainage to begin with, while most of the rest claimed that there were no problems. A small minority of 1.7% in Sharqaiya and 8.9% in Beheira said that the soil suffers from water logging.*

*In Sharqaiya, 17.2% anticipate that there will be drainage problems in the future. 38.5% of that group expects problems to develop within one to three years. By contrast, the overwhelming majority of landlords in Beheira say that there will be drainage problems in the future (78.4%). About 15.4% of those anticipating problems expect them to develop within the next one to three years. Another 25.6% expect the problems to start surfacing in three to five years.*

*Very few in Beheira (3.8%), as opposed to a little over one quarter in Sharqaiya, think that they can solve these problems on their own. A majority in both governorates, (90.4% in Beheira and 68.8% in Sharqaiya) think that government intervention is going to be necessary to solve these problems. The remainder in both governorates said that solving these problems would require the cooperation of both the local residents and the government. It is surprising that more landlords in Beheira saw a need for government help than their counterparts in Sharqaiya, given Beheira's higher levels of education, income, etc. This is probably due to the difference in the magnitude of the problems in each area.*

*In sum, transferring the management and maintenance of the drains is a less appealing idea to the water users in both the new and old lands. Important conditions would likely have to be met to sell this idea to them. This is especially the case because farmers continue to pay for the cost of tile drainage, and they certainly resent it. Furthermore, it seems that the anticipated problems, at least in Beheira, are going to be of a magnitude that has traditionally required the intervention of the state.*

## **24. The Role of the Water Users and the State**

*What would be the precise role of the water users after management and maintenance of the canals has been liberalized and control of the drains has been transferred? And what would be the role, if any, of the state's irrigation district in irrigation operations? This section will address such questions. It will also examine users' views on the ability of the WUAs to carry out the responsibilities of management and maintenance of the canals and drains.*

*In order to address the role of the users, several specific questions were chosen as measures. Users' responses to those questions are shown in Table 32. On these questions, one finds a relatively higher degree of agreement between the users in Sharqaiya and Beheira, despite significant quantitative differences. Farmers in these areas agreed on the rank of three issues out of seven, compared with agreement on only two issues among the old lands users in Dakhalaiya and El Minya. Furthermore, a higher percentage of the users in the new lands, in both Sharqaiya and Beheira, would accord a greater role to the farmers in the management and maintenance of the canals in the post-transfer era. At the same time, Dakhalaiya users followed a pattern in which they were least likely to respond positively to any potential role they might be playing in the future. The exception to this was in a question regarding setting the irrigation schedule. On this question, Dakhalaiya users were third, being more likely to support an increased role for users than their counterparts in El Minya were. But on every other question, El Minya users were third. Sharqaiya users were second. Beheira users, by an average margin of 20% more than Sharqaiya users, were most likely to support an increased role for farmers on every question.*

*It is worth noting that there was a high degree of uncertainty about the exact role of the users, amounting to an average of 26.8% in Dakhalaiya, 8.1% in El Minya, 22.1% in Sharqaiya, and 8.6% in Beheira. Such high uncertainty leaves wide room to build support for the project.*



**Table 32**  
**Percent Distribution of Responses to Suggested Roles for Water Users After the**  
**Transfer of Management and Maintenance of the Branch Canals**

Canal area	Dakhalaiya	El Minya	Sharqaiya	Beheira
Suggested Roles & Responses				

<i>Setting fees</i>				
<i>Yes</i>	<i>16.7</i>	<i>15.3</i>	<i>41.4</i>	<i>65.0</i>
<i>DNK</i>	<i>23.3</i>	<i>6.8</i>	<i>34.5</i>	<i>10.0</i>
<i>No</i>	<i>60.0</i>	<i>78.0</i>	<i>24.1</i>	<i>25.0</i>
<i>Collection of fees</i>				
<i>Yes</i>	<i>16.7</i>	<i>18.6</i>	<i>40.7</i>	<i>65.0</i>
<i>DNK</i>	<i>21.7</i>	<i>6.8</i>	<i>33.9</i>	<i>8.3</i>
<i>No</i>	<i>61.7</i>	<i>74.6</i>	<i>25.4</i>	<i>26.7</i>
<i>Allocation of funds for the various maintenance tasks</i>				
<i>Yes</i>	<i>8.3</i>	<i>13.6</i>	<i>42.4</i>	<i>66.1</i>
<i>DNK</i>	<i>40.0</i>	<i>10.2</i>	<i>27.1</i>	<i>8.5</i>
<i>No</i>	<i>51.7</i>	<i>76.3</i>	<i>30.5</i>	<i>25.4</i>
<i>Setting the timing of the various maintenance tasks</i>				
<i>Yes</i>	<i>23.3</i>	<i>25.4</i>	<i>52.5</i>	<i>68.3</i>
<i>DNK</i>	<i>23.3</i>	<i>6.8</i>	<i>10.2</i>	<i>10.0</i>
<i>No</i>	<i>53.3</i>	<i>67.8</i>	<i>37.3</i>	<i>21.7</i>
<i>Setting the irrigation schedule for each reach</i>	<i>28.3</i>	<i>22.4</i>	<i>54.2</i>	<i>68.3</i>
<i>Yes</i>	<i>23.3</i>	<i>8.6</i>	<i>10.2</i>	<i>6.7</i>
<i>DNK</i>	<i>48.3</i>	<i>69.0</i>	<i>35.6</i>	<i>25.0</i>
<i>No</i>				
<i>Organizing irrigation schedule for the users</i>				
<i>Yes</i>	<i>28.3</i>	<i>22.4</i>	<i>54.2</i>	<i>68.3</i>
<i>DNK</i>	<i>23.3</i>	<i>8.6</i>	<i>10.2</i>	<i>6.7</i>
<i>No</i>	<i>48.3</i>	<i>69.0</i>	<i>35.6</i>	<i>25.0</i>
<i>Contracting companies &amp; individuals to perform maintenance services</i>				

<i>Yes</i>	<i>35.0</i>	<i>20.3</i>	<i>62.7</i>	<i>71.7</i>
<i>DNK</i>	<i>16.7</i>	<i>8.5</i>	<i>11.9</i>	<i>6.7</i>
<i>No</i>	<i>48.3</i>	<i>71.2</i>	<i>25.4</i>	<i>21.7</i>
<i>Participation in the management of the canal with the government via joint committees</i>				
<i>Yes</i>	<i>6.8</i>	<i>15.5</i>	<i>39.0</i>	<i>70.0</i>
<i>DNK</i>	<i>39.0</i>	<i>8.6</i>	<i>27.1</i>	<i>10.0</i>
<i>No</i>	<i>54.2</i>	<i>75.9</i>	<i>33.9</i>	<i>20.0</i>

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*Using poverty (thus excluding Beheira) to examine whether there is any relationship between economic conditions and an image of the future role of the users, the data indicated that the farmers in the three poorer governorates only agreed on one out of the seven questions used to measure their future role.*

*That potential future role was setting the irrigation schedule for each reach. The farmers in all three areas found that potential role to be the second most attractive. But there was a tremendous gap between the portion of Sharqaiya users who believed that this is a potential role (54.2%) and the portion of Dakhalaiya (28.3%) and El Minya users (22.4%).*

*Although there was much disagreement among the farmers about their own role in the post-transfer era, they showed a considerable degree of consensus when it came to their expectations about the role of the state's irrigation district in management and maintenance. Again, the two new lands samples were more likely to favor each of the*

*potential roles for the state, and there was a relatively wide gap between the Beheira sample and the Sharqaiya sample (about 20 %).*

*But that gap is not as wide as the one between Beheira's farmers and those of Dakhalaiya and El Minya. The gap is about 31% in the case of El Minya and 42% in the case of Dakhalaiya, as Table 33 shows. Both El Minya and Dakhalaiya have kept their ranks in terms of the rate of those who can positively identify the future role of the state in management and maintenance of the branch canals. There are thus clear trends in thinking that vary according to region, size of holdings, income, and education.*

*It is also worth noting that the portion of those who do not know what role the state would have during the post-transfer period is much higher in all the governorates, including Beheira.*

**Table 33**  
**Percent Distribution of Water Users' Vision**  
**of the State Role in the Post-Transfer Era**

<b>Canal area</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<b>Role &amp; Responses</b>				
<i>Provide Technical Support</i>				
Yes	46.6	44.1	58.6	83.3
DNK	29.3	27.1	25.9	11.7
No	24.1	28.8	15.5	5.0
<i>Provide Institutional Support</i>				
Yes	19.0	40.7	50.0	66.1
DNK	48.3	30.5	36.2	18.6
No	32.8	28.8	13.8	15.3
<i>Provide Legal Support</i>				
Yes	27.6	42.4	53.4	69.5
DNK	48.3	30.5	34.5	18.6
No	24.1	27.1	12.1	11.9
<i>Participate as an observer in WUA meetings</i>				
Yes	32.8	42.4	51.7	71.2
DNK	50.0	33.9	34.5	16.9
No	17.2	23.7	13.8	11.9

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*How this transfer can be put into action depends largely on the ability of the WUAs to carry the responsibilities of managing and maintaining the canals. The available data reveal that the great majority believes that the WUAs are not qualified, as of today, to bear the responsibilities with which they are supposed to be entrusted. The same trend that prevailed in the previous two tables prevailed here. Again, Dakhalaiya users (at*

*10%) were least likely to agree that the WUAs could carry such responsibilities; El Minya came in third (20.3%), Sharqaiya was second (32.2%) and Beheira was far ahead of the others (47.5%).*

*The numbers were much higher on the negative side. In Dakhalaiya, 76.7% of respondents did not believe that the WUAs could carry out the burdens of maintenance and management of the canals. The comparable rate for El Minya was 74.6%, 54.2% for Sharqaiya, and 52.5% for Beheira. 13.5% were uncertain in both Sharqaiya and Dakhalaiya, and 5.1% were uncertain in El Minya. No one was uncertain in Beheira, which may be taken as a form of resisting coming changes.*

*When asked about the timeframe in which the transfer could take place, the majority tended to push this as far into the future as possible. Only a small minority of water users in Beheira said the transfer could be accomplished in less than three months. Another small minority (about 2-3% in Dakhalaiya, Sharqaiya and El Minya, and a little less than 6% in Beheira) thought that it would take 3-6 months. There was a greater degree of variation on whether the transfer could happen within a year. 34.8% of Dakhalaiya farmers thought this was possible, followed by Sharqaiya (25.8%), El Minya (15.2%), and Beheira (2.9%). Most users thought it would take more than a year (71% in Sharqaiya and 60.9% in Dakhalaiya). Many even thought the transfer would take more than three years (82.6% in El Minya and 45.7% in Beheira).*

*The researchers also asked the users explicitly if they think that the transfer is, on the whole, worth implementing. Table 34 shows the percent distribution of the respondents' attitudes on this subject.*

**Table 34**  
**Percent Distribution of Responses on Whether the Idea of Transfer of Branch Canal Management and Maintenance as a Whole is Worth Implementing**

*APRP Water Policy Program*  
*Transfer*

*MWRI Policy on Irrigation Management*

<b>Canal areas</b> <b>Response</b>	<b>Dakhalaiya</b>	<b>El Minya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<i>Yes</i>	20.3	29.8	35.0	63.3
<i>DNK</i>	64.4	68.4	61.7	36.7
<i>No</i>	15.3	1.8	3.3	----
<i>Total</i>	100.00	100.00	100.00	100.00

*Source: Survey Results (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*The table shows that only a minority of the users in three of the four governorates, i.e.*

*Dakhalaiya, El Minya and Sharqaiya, accept the idea as a whole. By contrast, a greater majority among the Beheira water users approve of the idea. Again we see the same pattern as earlier, where Dakhalaiya farmers are least accepting of the idea, followed by El Minya, then Sharqaiya, and finally Dakhalaiya. This is what the author referred to earlier as the triumph of tradition. The transfer idea entails risk, and the Egyptian peasant, like peasants everywhere else, is risk averse. The fact that there is a clear majority in Beheira that approve of the idea is not surprising. Beheira farmers are very atypical of Egypt's rural landholders. They are educated, professional, white-collar-turned-farmers. They are capitalist farmers who are using relatively advanced technology, their capital investments are relatively large, and they are market-oriented. In this sense, the users of the other three governorates are attached to history and those of Beheira to the future, and that explains the consistent differences in their responses.*

## **25. The Social Dimension**

*A high number of respondents expressed the belief that there are water shortages in their respective branch canals. The author has examined the impact of such shortages on crop yields as well as the anticipated effect of the proposed irrigation transfer project of reducing water shortages. This section examines the relationship between water shortage and social cohesion.*

*Water users were asked to respond to the question, “Do fights break out between farmers in your village because of irrigation?” In responding to this question, a major divergence was apparent between El Minya and the other three governorates. The majority of the water users outside of El Minya said that such disputes always happen. Such responses were most frequent in Beheira, where 91.5% reported irrigation-related disputes. Though a smaller portion in Sharqaiya and Dakhalaiya (58%) agreed there are always such disputes, they were still a clear majority. But no one in El Minya fell into that category. On the contrary, 93.2% of El Minya farmers reported that irrigation-related disputes never happen, and only 1.7% and 5.1% said that such disputes either happen sometimes or seldom happen. Together, these two categories (“sometimes” and “seldom”) were chosen by about 34% of Dakhalaiya users, of whom 27.1% indicated such disputes “sometimes” happen. 42.1% fell into the same two categories in Sharqaiya, of whom about 46% stated that such disputes happen sometimes. Only 3.4% in Beheira said that fights erupt sometimes and none said they seldom happen.*

*It is clear then from the above description that the situation is most severe in Beheira, and this could be another reason for Beheira farmers' relative support of the idea of the irrigation transfer project. It is also apparent that water shortages are having a negative impact on the social fabric of these communities. This is especially apparent in light of the fact that El Minya farmers rarely mention such incidents. The difference is that the El Minya canal has a continuous flow and has witnessed the implementation of the WUAs at the mesqa level. This, however, should not be taken to mean that an implementation of the IIP would automatically reduce fighting. This largely depends on other factors prevailing in the communities. The most common factors leading to the eruption of such fights include conflict over priority of irrigation, water stealing, partnership in the irrigation pump, as well as water shortages.*

*Customary law is the most common method of settling disputes over irrigation. In the governorates of Dakhalaiya, Sharqaiya and Beheira, about 78.7% of the water users indicated that customary law is resorted to when disputes arise (El Minya farmers did not report on this question since they rarely have disputes over irrigation). When disputes occur, the intervention of the police is not uncommon. This is especially the case in Dakhalaiya (22.7%), and less so in Sharqaiya (11.4%), and Beheira (7.45%). The district irrigation engineer has a very limited role in the eyes of the users in settling such disputes. He only accounts for 4.5% of settlements in Dakhalaiya and 2.3% in Sharqaiya (the district engineer's role was not mentioned in the other two areas).*

*The above data clearly indicate that water shortages do not come with an economic price only; there is a social price as well. In the history of rural Egypt, conflict over irrigation has been a major fuel for vendettas.*

*The logical question is what impact the proposed transfer would have on fighting. Although there were mixed responses to this question, the most readily apparent pattern is one in which the El Minya farmers stood on one side, with 75% anticipating reduced fighting, and farmers in the other three governorates disagreeing. In both Dakhalaiya and Sharqaiya, a majority of farmers do not think that transfer is going to reduce fighting (31.5% and 34.1%, respectively). Beheira's farmers are evenly split; 50% believe that transfer would reduce fights, another 46.4% think otherwise, and 3.6% are unsure.*

*The picture brightened slightly when users were asked if WUAs would help reduce fighting. Table 35 shows the percent distribution of the farmers' responses to that question.*

*First, it is clear that users in Dakhalaiya and Beheira are more likely to answer yes to the question. When WUAs were specifically mentioned, about 23% more users in those areas said transfer would reduce fighting. In Beheira, the results were no less impressive, as the mention of WUAs pushed positive responses up to 71.7% (21.7% higher).*

**Table 35**  
**Percent Distribution of Responses to the Question,**

**“Do you think that if you formed a WUA between those who irrigate from the same village, it would reduce conflict?”**

<b>Canal area*</b>	<b>Dakhalaiya</b>	<b>Sharqaiya</b>	<b>Beheira</b>
<b>Responses</b>			
<i>Reduce</i>	<i>54.5</i>	<i>33.3</i>	<i>71.7</i>
<i>Increase</i>	<i>4.5</i>	<i>2.4</i>	<i>1.9</i>
<i>Remain as is</i>	<i>27.3</i>	<i>45.2</i>	<i>24.5</i>
<i>DNK</i>	<i>13.6</i>	<i>19.0</i>	<i>1.9</i>

*Source: Survey Data (Note: These data were collected in July 2000, prior to the start of any IMT activities, and represents the views of farmers before the introduction to them of the concept of water user organizations or IMT.)*

*\* El Minya was not included because of the existence of WUAs and because the sample of those stating that there were any fights was too small to warrant further analysis.*

*Second, although the proportion of those expecting fewer fights held steady in Sharqaiya, those who were not sure increased by 4.2 times (to 19.0%) when the WUAs were mentioned. In fact, this is the case in all of the three governorates. Third, a very small minority still believed that, organization or no organization, conflict would increase. Thus, the general conclusion that comes clear is that the WUAs are seen as critical to social peace and cohesion in these communities. Furthermore, the success of the IIP is going to largely depend on making water available and thus reducing the existing tension.*

Ministry of Water Resources and Irrigation

US Agency for International Development

Agricultural Policy Reform Program

Environmental Policy and Institutional Strengthening Indefinite Quantity Contract

**APRP—Water Policy Activity  
Contract PCE-1-00-96-00002-00  
Task Order 807**

***IRRIGATION MANAGEMENT TRANSFER:***

***PUBLIC AWARENESS CAMPAIGN***

**REPORT 47  
APPENDIX H**

**December 2001**

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**Water Policy Program**

**International Resources Group**

**Winrock International**

**Nile Consultants**

**REPORT 47**

**APPENDIX H**

***IRRIGATION MANAGEMENT TRANSFER:  
PUBLIC AWARENESS CAMPAIGN***

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December 2001

For

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Environmental Policy and Institutional Strengthening Indefinite Quantity Contract (EPIQ)

*Partners:* International Resources Group, Winrock International,  
and Harvard Institute for International Development

*Subcontractors:* PADCO; Management Systems International; and Development Alternatives, Inc.

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## LIST OF ABBREVIATIONS AND ACRONYMS

APRP	Agricultural Policy Reform Program
AUC	American University in Egypt
BCWUA	branch canal water user association
EPADP	(MWRI) Egyptian Public Authority for Drainage Projects
EPIQ	Environmental Policy Indefinite Quantity
EWUP	Egypt Water Use Project
FAQ	frequently asked questions
GOE	Government of Egypt
IAS	Irrigation Advisory Service
IDRC	International Development Research Council
IFAD	International Fund for Agricultural Development
IIP	Irrigation Improvement Project
IIS	(MWRI) Irrigation Improvement Sector
IMT	irrigation management transfer
INPIM	International Network on Participatory Irrigation Management
IRG	International Resources Group, Ltd.
ISM	Irrigation Systems Management Project
KAP	Knowledge, Attitudes and Practices
MALR	Ministry of Agriculture and Land Reclamation
M&E	monitoring and evaluation
MWRI	Ministry of Water Resources and Irrigation
O&M	operations and maintenance
PAC	public awareness campaign
USAID	United States Agency for International Development
WPAU	Water Policy Advisory Unit
WPRP	Water Resources Results Package
WUA	water user association

## Executive Summary

### Purpose

The primary Egyptian agency responsible for water resources management is the Ministry of Water Resources and Irrigation (MWRI). As such, it is mandated to plan, construct, operate, manage, and maintain the irrigation and drainage network in Egypt. The MWRI distributes irrigation water to Egypt's lands by diverting water at various points from the Nile River to principal canals, which in turn feed a complex network of main canals. Water is generally supplied throughout the network below the surrounding farm ground level, requiring farmers to lift water (using pumping devices) from the watercourse supplying their farms. Escalating population growth, a desire for agricultural expansion, and increasing demands on surface water supply all play significant roles in water delivery capability.

The MWRI is embarking on an innovative and bold plan to transfer irrigation management to water users, expanding user participation at secondary levels of the irrigation/drainage system. Irrigation Management Transfer (IMT) will allow the private sector, in the form of secondary-level *Branch Canal Water User Associations* (BCWUAs), to take managerial and financial control over operation and maintenance. This will result in direct and immediate reductions in government expenditures, freeing government funds for those tasks the private sector is unable to effectively undertake. Perhaps more importantly, it will address issues that determine utilization efficiency, productivity, and protection of water resources. If successful in its efforts, IMT, through BCWUAs, will help farmers:

- play a role in ensuring more efficient operations, improved maintenance and protection of physical works;
- become involved in management of water and formation of policy regarding water issues;
- be involved in improvements to the water delivery system.

To achieve these goals, the MWRI will need a well-trained and well-informed cadre of professionals for assisting farmers with their new responsibilities related to water delivery, water use and the transfer of irrigation management.

In order for IMT to work properly, there must be a free-flow of information between all participants: farmers, MWRI officials and field staff, the government and other ministries, the press and media, and the general public. Good communications are essential at all stages of the process. A *Public Awareness Campaign* (PAC) program has been developed by the EPIQ Water Policy Team's IMT Working Group under the USAID/MWRI Agricultural Policy Reform Program. The PAC includes a comprehensive strategy and a set of communication tools to educate all targeted audiences on how to participate in and support IMT. The purpose of the IMT/PAC is to promote a better understanding of IMT, support the ongoing development of this program, and motivate people to remain continuously involved.

This present document prepared by a Communications Specialist<sup>8</sup> in collaboration with the IMT Working Group, the Water Policy Advisory Unit (WPAU) and Water

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<sup>8</sup> Mr. Patrick Papania, Public Awareness & Communications Specialist, Winrock International

Communications Unit, outlines the objectives of and a strategy for the IMT/PAC. It identifies the communications tools that will be used; presents the obstacles and opportunities; and provides a basis for evaluation.

## Methodology

The IMT program has short, medium and long-term goals clearly defined in Section V of Report No. 36 (MWRI Policy on Irrigation Management Transfer: Phase I). The IMT/PAC will work in parallel with this phased implementation plan, scheduling educational and informational activities in coordination with those of larger the program. The IMT plan is using the following schedule:

Short-term:	September 2001 - December 2002
Medium-Term	January 2003 – December 2007
Long-term:	January 2008 - December 2022

The process of designing and implementing the IMT/PAC will be done in three phases. Phase I is *Analysis and Strategy Development*. Phase II is *Design and Production of Program Prototypes*. Phase III is *Implementation, Dissemination and Evaluation*. This report represents the completion of the first and much of the second of these three phases.

The present analysis identifies all of the target audiences and goals that the program hopes to achieve at each level. Target audiences' perceptions and misperceptions were examined, as well as their attitudes and information deficits. A study was undertaken of the media environment in Egypt. A variety of possible professional and community networks for disseminating information about IMT were discussed. The incentives and disincentives for each group to participate in or support IMT were also identified and categorized. The strategy development follows from the analysis and sets the plan for the IMT/PAC. This report may serve as the *Plan of Action for IMT/PAC*.

The strategy defines the tools for each of the target audiences, the content, tone and approach, and the modes for disseminating the information. Following the approval of the strategy for the PAC, design of program material began. In Phase II, the communications tools outlined in the strategy were designed for the *IMT/PAC Pilot Program*. Prototypes of the basic elements for the print program were completed by early September 2001. Print production will also begin during Phase II.

Material production is followed by Phase III: Implementation, Dissemination and Evaluation. Preparation for this final phase of the IMT/PAC in the short-term should begin immediately. The IMT/PAC cannot succeed without an aggressive and effective dissemination effort. Since there are limitations in terms of staff and budget for the IMT/PAC, the MWRI Communications Unit will have to play a major role, relying on itself, the press and broadcast media and a variety of formal and informal networks to get the information into the hands of the appropriate audiences. This report suggests that an IMT/PAC Team be created to take on IMT/PAC as a primary activity. A provisional plan for disseminating the information and ideas to the target audiences is also outlined in this report.

## **Analysis**

The analysis of the obstacles and opportunities, the informational needs, attitudes and characteristics of the target audiences in Egypt provided the basis for the development of this communications strategy and the design of the IMT/PAC. The analysis has resulted in definition of six target groups of the IMT/PAC -- those audiences whose support and participation are believed to be essential to the success of IMT.

1. Farmers
2. Press and Media
3. Religious Groups
4. MWRI Officials
5. Engaged Public:  
Other Ministries, NGOs, Politicians, Donor Organizations, Industry
6. General Public

Program goals were developed for each category and a variety of modes identified to disseminate the information including newspapers and magazines, TV and radio, government, education and community networks. Because IMT is new to Egypt, there are enormous information deficits, which will require an aggressive effort to fill. Farmers need to be educated on the role IMT will play in securing water sources for them, assuring more efficiency and raising production and profit margins. They will need considerable encouragement to participate. An orchestrated effort will involve schools, mosques, field staff and a number of existing outreach networks. The engaged target groups and the press and media must be given accurate, transparent information and be encouraged to become partners in the program.

This present analysis found that misconceptions and reservations about participating in and supporting IMT exist among all target groups. The IMT/PAC will attempt to overcome these obstacles by addressing the groups directly and making an aggressive effort to distribute timely relevant information to all audiences. The reason for a comprehensive campaign is to make the audiences feel as though it is "raining" IMT. Information about the program needs to be seen everywhere. Target groups should sense how important the issue is just by the effort made to communicate it.

## **The Communications Strategy**

The following are some of the basic principals that should guide the development and implementation of the Public Awareness Campaign

- Build a broad consensus in Egypt in favor of IMT and the efforts of MWRI.
- Emphasize efficiency in water usage, conservation and the positive contribution IMT will make for future security of water availability.
- Be direct, forthright, open and positive in presentation. The credibility of the communication program is one of its primary assets.
- Information should be factual and presented in a neutral tone, with a clear presentation of benefits.
- In as many ways as possible, the IMT/PAC should try to incorporate techniques and strategies used for commercial marketing, without becoming commercial or promotional.

- The IMT/PAC team must develop formal and informal systems for listening to the various audiences. The IMT/PAC should regard collecting information as important as distributing it.

It is important to clarify misconceptions and to be responsive to questions and inquiries from the participants. Dealing with what people think they know is often more difficult than dealing with what they know or what they don't know. *The MWRI is not attempting to sell water. While better irrigation services come with a cost, the water itself is not being priced. This is only one of many misconceptions that must be addressed.*

In order to improve the way the public thinks about the MWRI and its programs, the press and media must be treated as partners in the process of information delivery. The IMT/PAC Team must build a positive working relationship with reporters and editors by being proactive, especially with elements of the press that have not been traditionally supportive of its programs. In effect, the press must be used for MWRI objectives. This can only be achieved by communicating well with them.

### **The Pilot Program**

The Pilot Program focuses on a set of communications tools, including a logo, a graphic identity program, and a set of brochures that will be used collectively to disseminate information to target audiences. The Pilot Program will act as a base for the growth of IMT/PAC. The IMT/PAC and its expansion will benefit from the feedback on and impact of the initial materials. The following items have been designed and produced in low-resolution prototype format, within one design and under an attractive graphic identity system:

- Introductory brochure
- Frequently Asked Questions (FAQ) Brochure
- Farmers' Series FAQ (4)
- Field Staff Guide
- Fact sheets (3)
- Posters (5)
- Sample stickers (2)
- Activity booklet
- Stationery, envelopes and business cards

IMT/PAC materials should be expanded after the Pilot Program is launched. A ten- minute video program serving as an anchor for seminars and talk shows should be produced before the end of the short-term.

### **The Implementation Plan**

The proposal for implementation provided in this report gives a plan and timetable for the dissemination of information to the target audiences. The printed materials will be

used as a foundation for all the other media to insure a level of accuracy and quality control and to reinforce the MWRI's brand awareness. The introductory video will be used as a centerpiece for TV "talk shows" and news programs. It will also serve to set a standard for the quality of information transferred to target audiences at seminars, conferences, focus meetings and information days.

The report includes tools that were produced to maintain the flow of information between the IMT program and participants in the short-term. It is most important that the IMT/PAC team pay very close attention to the changing needs and attitudes of its audiences throughout the short term of IMT/PAC in order to best assess what sort of tools and messages should lead the program into the medium and long-term.

To move forward, produce the materials and organize the activities needed for the short-term, three approaches are being proposed. Each approach relates directly to the amount of participation the MWRI Communications Unit can contribute. One has the IMT/PAC Team created in full cooperation with private sector professionals. The second has partial cooperation, and the third approach has the MWRI Communications Unit implementing the program entirely on its own.

The ideal approach would be the first one in which there is a full collaboration between the Communications Unit and private sector professionals in the creation of an IMT/PAC Team. This would involve contracting four full-time staff to take-on the many responsibilities of the IMT/PAC Team. This Team would work within the Communications Unit and hire artists, musicians and other professionals on a commission basis when the talent is not available in-house to create the best possible tools for delivering the IMT message. The ideal approach would cost the MWRI \$144,500.00 for the first 18 months, i.e., the entire short-term. The two other approaches and their costs are outlined in the report.

It must be noted that if the MWRI decides to move forward with the first approach, the IMT/PAC Team should be strong enough to accomplish all of the objectives of the IMT/PAC effectively while also focusing its attention on resource mobilization for future initiatives. An efficient IMT/PAC will have increased chances of attracting corporate and industrial sponsorship of future MWRI outreach in the medium and long-term. Achieving excellent results in the short-term will attract many partners to the efforts in later stages.

## **26. Introduction**

In order to improve water delivery for agriculture and ensure more efficient operation and maintenance of the irrigation system, the GOE is introducing Irrigation Management Transfer (IMT). IMT involves transferring management responsibilities for the irrigation system from the GOE to stakeholders and/or the private sector.

IMT is a major feature of irrigation delivery in many other countries. Under the Egyptian model, private sector entities will assume managerial control, but not ownership, over the physical infrastructure and operations of the irrigation system. During the pilot phase, these management entities will operate over relatively large areas at the secondary level of the irrigation/drainage system, in the form of Branch Canal Water User Associations (BCWUAs). As the program is expanded, these entities may be private irrigation companies, cooperatives, or shareholder enterprises. They will be financially autonomous and will be able to hire or contract for technical operational and management services (O&M).

It is apparent that the GOE cannot continue to provide the present quality and range of infrastructure services, including system O&M in new areas, while still providing high-quality services in the old lands in the Nile Delta and Valley. IMT will set in motion a long-term evolutionary process allowing the GOE to significantly reduce its costs while continuing to expand its coverage and services in other areas. In addition, there will be increased equity in water delivery, anticipated increases in farm income, and sovereignty or direct user control over the resources.

### **26.1 Objectives of the IMT Program**

IMT will help assure the future of water availability in Egypt, and consequently, the stability of the nation. It will also result in direct and immediate reductions in government expenditures, freeing government funds for those tasks the private sector is unable to undertake. The objectives of IMT include:

- An overall reduction in the cost of irrigation
- Enhanced financial self-reliance of irrigation plans
- Expansion of service areas
- Greater irrigation water efficiency
- Higher quality technical services to end-users
- Changes in cropping intensity and yields due to better management and services

### **26.2 IMT Implementation Plan**

The IMT program is divided into 7 phases, stretching from 2000 – 2022. The following chart details the goals of each phase.

<b>IMT Implementation Plan</b>	
<b>PHASE I (end of 2000)</b>	<ul style="list-style-type: none"> <li>• Legal reforms supporting the IMT process</li> <li>• Formulation of IMT policy</li> <li>• Mobilize political support as legislative and executive levels</li> <li>• Consensus among stakeholders through multiple focus group meetings workshops and conferences</li> </ul>
<b>PHASE II (ending 2001)</b>	<ul style="list-style-type: none"> <li>• Four pilot areas to be focus of IMT policy testing process, representing a variety of operating management environments.</li> <li>• Contracting procedures between MWRI and private sector to be formulated to include detailed description of stakeholders' role</li> <li>• Training of stakeholders, particularly regarding O&amp;M and organizational management</li> <li>• Process documentation by IAS in pilot areas</li> <li>• Review and refine IMT policy, based on results of the pilot phase</li> </ul>
<b>PHASE III (ending 2002)</b>	<ul style="list-style-type: none"> <li>• Consensus agreement on methods of revenue generation, including direct assessment and contracting for works and services</li> <li>• Pilot area replication and extension</li> <li>• Major responsibilities to be transferred to the users at the branch canal level</li> <li>• Focus on O&amp;M</li> </ul>
<b>PHASE IV (5 Years ending of 2007)</b>	<ul style="list-style-type: none"> <li>• Issuance of ministerial decree sanctioning the method of revenue generation for the pilot areas and negotiations of transfer time table</li> <li>• Capacity building: BCWUAs take charge after having received adequate training and on-site supervision. MWRI to supervise and provide on-going TA.</li> <li>• Monitoring and Evaluation of IMT process using combined economic, engineering and PRA methods.</li> <li>• Pilot developed for federation of BCWUAs.</li> <li>• IIP and EPADP sub-surface drainage amalgamated into one program at water district or public canal level.</li> <li>• Policy/program evaluation and refinement</li> </ul>
<b>PHASE V (5 Years ending 2012)</b>	<ul style="list-style-type: none"> <li>• By 2012 IMT to have been implemented at the public canal level (moderate size). Each branch canal or secondary drain on the public canal system will be turned over to users in preparation for the public canal level.</li> <li>• Continuous M&amp;E. Impact assessment.</li> </ul>
<b>PHASE VI (10 yrs ending 2022)</b>	<ul style="list-style-type: none"> <li>• Consolidation of federation into district command areas</li> </ul>
<b>PHASE VII (Post-2022)</b>	<ul style="list-style-type: none"> <li>• Main canals and drains transferred to private management</li> <li>• Implementation of IMT at regional level (e.g. East Delta, West Delta, etc.)</li> </ul>

### 26.3 The IMT Public Awareness Campaign (IMT/PAC)

In order for IMT to work properly, its objectives and operations must be transparent and clearly communicated. Winrock International has designed a Public Awareness Campaign proposal that includes a comprehensive strategy and a set of communication tools to educate all targeted audiences in how to participate in and support IMT. The purpose of the IMT/PAC is to

- Support the development of the IMT program in Egypt by implementing a comprehensive, broad-based communications outreach initiative targeting everyone whose participation and involvement is needed.
- Enhance the level of understanding of IMT among the key target audiences and, ultimately, the population of Egypt.
- Provide educational tools that upgrade the ability of the MWRI, especially a core group of field engineers, irrigation extension agents and Communications Unit task managers, to transfer IMT ideas effectively and efficiently to the target groups.
- Create a systematic approach for information distribution and dissemination, capable of serving a variety of target audiences fluidly upon demand.
- Develop an initiative with other Ministries and the "engaged" public to increase awareness of water conservation issues in Egypt
- Develop a routine program of conferences, workshops and seminars that invite all target groups to continue upgrading their understanding and involvement in IMT.

## **26.4 Proposed Methodology**

The tasks of designing, producing and implementing the Public Awareness Campaign (PAC) have been divided into three phases. Phase I and the pilot print program of Phase II have been completed. While there may be some overlap in activities from one phase to another, the basic tasks for each are as follows:

### **Phase I: Analysis and Strategy Development**

This phase began with a thorough communications analysis of the environment where IMT is being introduced and the goals/objectives for launching the campaign. The phase ends with the submission of this Plan of Action, describing the situation, identifying problems, defining a strategy and prioritizing objectives and tasks. This should be a clearly defined, well-articulated communications strategy and production schedule for the Pilot Program in the short-term, and continuing development in the medium and long-term.

### **Phase II: Design and Production**

*The design and production of program prototypes has begun. This involves the creation of the communication tools described in the plan – the logos, brochures, video program, TV and radio spots, press releases, and other tools that will be used to deliver the information needed by the various audiences. Prototypes of program materials designed in Phase II will be produced in the appropriate quantities needed for distribution to the targeted audiences.*

### Phase III: Implementation, Dissemination and Continued Evaluation

The communications tools developed in Phase III will be ineffective unless they reach their intended audiences. Phase III involves the delivery of information to the public and the systematic evaluation of the impact these tools are having. Continued effectiveness depends largely on the ability to measure PAC results and react to changing needs.

## **27. Phase I — Analysis and Strategy Development**

The primary task of Phase I was to gather information about the audiences, their attitudes, perceptions and misconceptions, social and economic conditions, the environment in which they live, the media environment, past communications activities and other information necessary to formulate a strategy to design for IMT/PAC and produce the Pilot Program. Information gathering was at the forefront in this first phase of the project. This activity will continue to be, in formal and informal ways, an essential task throughout the life of the program. A two-way flow of information is the only path to better understanding the developing interests and concerns of each of the different audiences.

Any major national policy change, especially one as innovative as IMT, stirs resistance from some quarters. Through the IMT Working Group meetings and interviews with key players in IMT – MWRI staff, irrigation engineers and farmers -- it has been determined what each target audience must know in order to participate in and support the program. Perceptions and misconceptions are often determining factors in the level of participation or level of support of target audiences. The environment in which IMT is being launched, current levels of awareness, and communications conditions have been examined in the MWRI *Knowledge, Attitudes and Practices of Egyptian Farmers Towards Water Resources (KAP)* report and assorted EPIQ publications, along with other information provided by the MWRI. This Plan of Action is thus the result of a group effort. The ideas presented within are those that the IMT Working Group has decided upon as the most essential for the efforts required.

### **27.1 Overview of Irrigation Management in Egypt**

The primary Government agency responsible for water resources management is the Ministry of Water Resources and Irrigation. As such, it is mandated to plan, construct, operate, manage, and maintain the irrigation and drainage network in Egypt. The MWRI distributes irrigation water to Egypt's "old lands" by diverting water at various points from the Nile River to principal canals, which, in turn, feed a complex network of main canals. Water is generally supplied from below the surrounding farm ground level, requiring farmers to lift water (using pumping devices) from the watercourse.

In 1981, the MWRI initiated the Irrigation Management Systems (IMS) Project with USAID funding. The IMS Project was amended in 1984 to take advantage of the seven-year Egypt Water Use and Management Project (EWUP, 1977-84), an interdisciplinary project implemented by the MWRI. The recommendations of that project related to farmer participation in irrigation management were:

- Farmers should be involved in improvements to the water delivery system.
- Farmers must play a role in ensuring more efficient operations, improved maintenance and protection of physical works.
- Farmers should become involved in management of water.
- The need for a special well-trained cadre of professionals to generate new farmer responsibilities related to water delivery, water use and organization of farmers and to train farmers in these skills.

- Continued farmer involvement is essential for improved operations, water scheduling, mesqa improvements and renovations of branch canals.

As a successor to EWUP, the Irrigation Improvement Project (IIP) was added as a component of IMS in 1987 and has since evolved organizationally to sector status within MWRI. IIP involves a number of projects for irrigation improvement assisted by several donors and international lenders. Participatory irrigation management began in a formal way under the IIP, but while many lessons have been learned, insufficient monitoring and evaluation were carried out to document the impact. A successor phase of the IIP, funded with assistance from KFW, the World Bank and local funds, is being carried out as part of a seven-year program. Proposals are underway, with cooperation from other funding resource agencies, for expanding the IIP development package to other command areas.

Under the APRP program of USAID, policy reforms were achieved during 1997-1999 that further expanded user participation at secondary levels of the irrigation/drainage system. MWRI promulgated a policy allowing for the formation of secondary-level *Branch Canal Water User Associations*. One of the seminal recommendations from this BCWUA policy was to develop and pilot-test a policy on transferring selected water management and operational functions. The GOE transfer of major management responsibilities for sections of the irrigation system above the mesqa-level to stakeholders and/or the private sector is a bold advance toward the goal of participatory management and privatization of the irrigation system. Although irrigation management transfer (IMT) is now a major feature of irrigation delivery in many other countries, the program under discussion is the first attempt to introduce IMT in Egypt. Successful implementation of this benchmark will be a major turning point for this process to take hold at the grass-roots level of the GOE.

Unlike earlier irrigation improvement efforts in Egypt (e.g. EWUP, ISM, and IIP), which can be classified as “*farmer participation in irrigation improvement*”, the IMT model allows the private sector and civil society to take managerial and financial control over operation and maintenance. This will result in direct and immediate reductions in government expenditures, freeing government funds to focus on those tasks the private sector is unable to effectively undertake. In the approximately 30 countries where IMT has been introduced so far, the types of reported impacts include:

- an overall reduction in the cost of irrigation,
- enhanced financial self-reliance of irrigation schemes,
- expansion of service areas,
- greater irrigation water efficiency,
- higher quality technical services to end-users, and
- increased cropping intensity and yields.

The incentives for the GOE and farmers to undertake this initiative, therefore, are clear and compelling. As a condition of handing over responsibilities, management transfers are often accompanied by physical rehabilitation of the systems. In most countries, service quality improvement and sustainability of irrigation systems have remained constant or have improved.

Under IMT models in other countries, private sector entities assume managerial control, but not ownership, over the physical infrastructure and its operations. These management entities normally operate over relatively large areas and can be in the form of water user associations, irrigation districts, water management districts, private irrigation authorities, cooperatives, or shareholder enterprises. They are usually financially autonomous, within parameters established by enabling statutes or decrees, and are able to hire or contract for technical operational and management services. Management transfer can be partial, incremental or total.

MWRI, through this IMT policy initiative, has set in motion a long-term evolutionary process that will allow the GOE to significantly reduce its costs while continuing to expand its coverage and services in other areas. Management transfers that occur in a supportive socio-technical context result in improved quality and efficiency of irrigation water delivery, which in turn will enhance profitability of irrigated agriculture and decrease the cost of irrigation.

## **27.2 MWRI Policy on Irrigation Management Transfer**

In December 2000 the MWRI promulgated a major policy on IMT, mandating handing over water management responsibilities from the GOE to stakeholders and/or the private sector. The policy focuses on the major management and operational responsibilities of the irrigation and drainage network sections above the mesqa-level:

*In a phased process of application, the MWRI will transfer selected sub-sections of Egypt's irrigation and drainage network to users and/or the private sector acting on behalf of the users.*

This policy will become the guide for all major participatory water management interventions, including establishment of water boards and councils, and has already impacted the revision of the GOE's laws on irrigation and water management.

## **27.3 Objectives of IMT/PAC**

IMT must be properly publicized in order to succeed. It is the job of the IMT/PAC team, along with the Communications Unit of the MWRI, to inform the various audiences about IMT and its benefits, to explain to each audience its role in IMT, and to rally support. The short, medium and long-term objectives of the PAC are as follows:

### Short-term Objectives (September 2001 - December 2002)

- Design, develop, and produce a Pilot Program that will comprise a basic set of communications tools to provide user-friendly information about IMT for the key target audiences:
- Promote the understanding and consent of IMT among all target groups.
- Motivate strong support for IMT from all target groups, especially political leaders and policy makers.

- Develop a Mission Statement, Logo and Graphic Identity System for IMT to begin the process of creating “brand awareness” for this program, distinguishing it immediately as an innovative new approach that must be taken seriously by all target audiences.
- Assist in the development of BCWUAs by motivating farmers and field engineers, alike, enabling them to serve the critical role that they must take in IMT.
- Identify what fits and doesn't fit the IMT model in Egypt, in order to assist in fine-tuning the program.
- Facilitate the creation of new BCWUAs.
- Attract new donor investment in IMT and other initiatives of MWRI.
- Develop tools for measuring the effectiveness of the pilot program.

#### Medium-term Objectives (January 2003 - December 2007)

- Reach a larger number of farmers in the pilot areas and extended target areas with a PAC program that promotes a clear understanding of IMT and strong motivation among the target groups.
- Continue to motivate strong support for IMT from all target groups.
- Help farmers make improvements on IMT and the efficiency of water management in their areas; promote increased agricultural responsibility and efficient water usage by farmers all over Egypt.
- Promote increased responsibility and efficient water usage by all target audiences, making water conservation a source of Egyptian pride and prestige.
- Continue providing reliable, timely, comprehensive, user-friendly information to help IMT grow, keeping it transparent and efficient.
- Continue assisting in the development of BCWUAs by motivating farmers and field engineers alike, enabling them to serve the critical role that they must in IMT.
- Identify what fits and doesn't fit the IMT model in Egypt, in order to assist in fine-tuning the program.
- Facilitate the creation of new BCWUA's.
- Promote IMT as a model for privatization efforts.
- Attract new donor investment in IMT and other initiatives of MWRI.
- Develop new tools for measuring the effectiveness of the pilot program and incorporate the lessons learned into a more effective long-term communications and education plan.
- Make an increased concerted effort to reach the engaged public and general public.

#### Long-term Objectives (January 2008 - December 2022)

- Create a sense of national pride in the successful efforts of all target audiences to have taken on the ambitious goals of IMT and to have redirected irrigation management in Egypt.
- Help IMT grow in powerful and enabled societies, remaining fair, transparent, efficient and effective.
- Link IMT with other ministry programs when promoting water conservation in general to assure no overlap or contradiction in MWRI presentations.
- Promote interstate and regional cooperation in IMT expansion.

- Create a system that consistently provides timely, relevant, accurate information to the public and all IMT participants.
- Share the experiences of IMT in Egypt with other countries embarking on similar irrigation policy.

## **27.4 Identifying the Stakeholders and Audiences**

Ten target groups have been identified for the IMT/PAC -- those audiences whose support and participation are believed to be essential to the success of IMT. In an effort to serve overlapping needs and use resources efficiently, these 10 audiences have been narrowed to 6 main groups. The creation of the "engaged public" category serves to regroup five target audiences that tend to have considerable similarities in needs. These audiences are all educated and in some way engaged with water issues for their own purposes. The groups are listed here in order of importance for IMT success.

1. Farmers
2. Press and Media
3. Religious Groups
4. MWRI Officials
5. Engaged Public
  - Other Ministries
  - NGOs
  - Politicians,
  - Donor Organizations
  - Industry
6. General Public

Each of the 6 main groups contains many subgroups, which are listed below:

### **1. Farmers**

- Four pilot areas
- Educated or non-educated
- Large and small farmers
- Head or Tail
- Owners or tenants
- Improved or non-improved land systems
- Male or female
- Old or new lands

### **2. Press and Media**

- Newspapers
- Magazines
- Television
- Radio
- Commercial print and broadcast media
- State-owned broadcast media
- Government Information Services

### **3. Religious Bodies**

- Muslim organizations
- Christian organizations

### **4. MWRI**

- Senior and Middle Management Officials
- Engineers (district) and Field Level Staff (technicians)
- Mechanical & Electrical Department
- National Water Research Center
- Water Communications Unit
- Drainage Authority (EPADP)
- Water Policy Advisory Unit
- Irrigation Department
  - Irrigation Advisory Service
  - Irrigation Sector
  - Irrigation Improvement Sector
  - Groundwater Sector
  - Horizontal Expansion & Projects Sector

### **5. Engaged Public**

- Other Ministries and Government Agencies
  - MALR
  - Education, Youth, Culture, Sports (*schools, universities, community centers, sports clubs and cultural venues*)
  - Environment, Transportation, Interior, Planning and Finance
- Non-governmental organizations
  - Red Crescent Society
  - Social Fund for Development
  - Cooperatives
  - Teachers' Associations (Parent/Teachers)
  - Syndicates of Engineers, Agronomists, Lawyers
- Politicians
  - People's assembly
  - Shura Council
  - Local Councils
- Donor Organizations or support groups
  - Multilateral Donors: UNDP, IFAD, World Bank, IDRC
  - Bilateral Donors: USAID, JICA, Gof Netherlands, KfW, Gof Italy, Canada
  - American University in Cairo (Desert Development Center)
- Industry and Municipalities

### **6. General Public**

All Egyptians not included in the first 5 target groups:

- Educated and uneducated adults
- University students

- Children
- Elderly
- Housewives
- Unemployed population
- Others from all backgrounds and professions

## **27.5 Close-up: The Target Audiences**

### Farmers

The IMT/PAC must be very effective in reaching the people most directly affected by the program: the farmers themselves. The campaign should introduce farmers to the merits of participating in IMT for their own benefit, both now and in the future. They must have an in-depth understanding of IMT policy and the costs, benefits and responsibilities for themselves and the government. They must accept IMT and have enough confidence in it to take it on.

When communicating with farmers, it is essential to pay close attention to their characteristics as a target group. They differ from other groups in their educational background, traditional farming practices, the types of farming activity, and size of operations. The messages and tools used to transfer these messages must be tailored to their needs.

The IMT/PAC should make an attempt to take into consideration the special needs of each subgroup of farmers. In the short-term, it may not be financially feasible to create a significant amount of specialized material to speak to the diverse needs of each. However, as the program moves into the medium-term, these issues should be considered in greater detail in order to adapt the messages more effectively.

### The Press and Media

The success of IMT requires the active participation of an informed press. Therefore, it would be wise to consider the media as partners. When treated as partners by the MWRI, they will, for the most part, give the program positive and frequent coverage. If they are neglected, they can respond negatively and create long-term problems and obstacles for IMT. IMT should be elaborated in a transparent, honest, and forthright way. The press and media will not tolerate less than this

Up to the writing of this report, the press and media had not been formally informed about IMT. If the press has learned of the program through rumors, they will undoubtedly have unclear perceptions of the benefits this program brings farmers. This means that the PAC will have to work fast to set the record straight. The following are

some general observations about the nature of the press that should be considered at all times:

- o The press is usually hungry for information and welcoming of a collaborative approach.
- In a country such as Egypt, water issues are always in fashion. The news value of new initiatives in this sector is relatively high.
- *The editors and managers of newspapers are aware of the level of interest in water issues on the part of their readers. This affects assignments and priorities in terms of reporters' time. The MWRI must take advantage of this favored status and find ways to make water news even more compelling for the audiences.*
- Some of the print media tends to focus almost exclusively on negative aspects of the efforts of the Egyptian government. This "opposition" press could create huge misunderstandings on the part of the general public and other target groups about IMT, making it even harder to present an accurate account of what is taking place.

It should be noted that elements of the press that traditionally take opposing stances on MWRI projects will remain in opposition as long as they feel excluded. Some effort must be made to win them over. IMT's benefits must be communicated to favorable press as well as the opposition. The MWRI should make every effort to reach out to all press and media organizations in an unbiased nature.

### Religious Bodies

If properly approached, religious bodies can play an essential role in the success and growth of IMT. In fact, without their support IMT has little chance of surviving. In a country like Egypt, where religion is a way of life, the opinions of the religious leaders in public policy are very influential. IMT/PAC should keep this in mind at all times, continuously providing the right message to this target group at the right time.

Fortunately, IMT compliments the teachings of the two largest religions in the country. Conservation and efficient use of God's gifts to humanity are strong messages in both Islam and Christianity. Therefore, the MWRI does not have to win this target group to the cause, but must activate their participation in making IMT a success.

It is not clear whether religious leaders are fully aware of the water crisis facing Egypt in the coming years. Thus, the IMT/PAC should assume nothing about what this group considers priority in water related issues. It must work to promote a better understanding of the country's water problems while teaching the concepts and benefits of IMT. If the religious bodies understand the basic ways IMT will enhance the socio-economic situation of Egyptians they will likely accept and promote IMT.

### MWRI

It should not be taken for granted that everyone within the MWRI has a clear understanding of IMT. A sound effort to upgrade the level of understanding of MWRI staff about IMT policy, costs and benefits could prevent public relations problems in the coming years. It is not enough that the involved MWRI staff have good tools for communicating, but they must understand, accept and have confidence in the program, enabling them to become full-time outreach agents for IMT.

In order to best address needs, this target group should be divided into two subgroups:

- A. Senior and Middle Management Officials*
- B. Engineers and Field Staff*

The IMT Working Group reports that the senior and middle management officials are sometimes confused by the details of IMT. Some officials do not even recognize that this is a specific program, different from and independent of other initiatives of the MWRI. This should be expected considering the number of projects officials track at any given time. As these officials will indirectly be providing information to many of the target groups through everyday comments and references to the program, it is of utmost importance that they have a clear understanding of IMT. By targeting them with information, MWRI can develop internal human resources in favor of IMT. In essence, the IMT/PAC Team should move IMT to the top of the list for all MWRI officials, not only making it a known entity, but a highly valued one as well.

The PAC must also develop and train a core group of field staff and engineers to keep IMT operating efficiently and transparently. This group might include MWRI staff and representatives from the IAS. They will have to understand and know very well their new roles in order to perform them effectively. They will also have to be reassured that they are not working themselves out of a job by promoting IMT. Dispelling the fear of becoming redundant should be addressed seriously. Through human resource development initiatives, the PAC will not only improve the technical level of cooperation and coordination in this subgroup, it will raise the spirits and enthusiasm of those working closest to the farmers. The will to communicate IMT is as important as being familiar with the technicalities. An enthused, well-informed, well-trained and well-equipped field engineer will be more effective in warranting the trust of the BCWUAs and local farmers.

The lack of previous experience in IMT is perhaps the most serious obstacle to the program's success and growth. Therefore, motivating farmers through a well-trained MWRI staff is a high priority. The IMT/PAC Team must promote IMT as an opportunity that should not be missed.

### The Engaged Public

This target group is comprised of government and non-governmental entities that are engaged in one way or another with water issues, farmers or education. The group is large in number but, fortunately, similar in some basic aspects. All of those in this group are literate, educated and directly concerned with the success of IMT, and engaged in water, agricultural, education or social issues. It is the goal of the PAC to

recruit them to the IMT effort in an attempt to set-up additional dissemination networks. Included in the Engaged Public category are ministries other than the MWRI, non-governmental organizations, politicians, donor organizations and industry.

If they accept IMT as an important national program, each of these subgroups will have its own unique way of supporting IMT and contributing to its success. When presenting messages to each, the role that each can play should be outlined with no ambiguity. Some of these groups will have fears about the success of IMT. Will the program strengthen the BCWUA's to the point of making them a threat to the established authority? Will IMT, as implemented by the MWRI, change the way the MALR does farmer extension work? Could that affect the need for field engineers? It must be understood that IMT is in accordance with the objectives and programs of these other entities. IMT will have much better chance of thriving if other engaged entities know about it and provide support, cooperation and participation.

Non-governmental organizations are ready for private sector initiatives by the GOE. The support that IMT will provide farmers in organizing themselves to take on greater responsibility is a direct support for civil society. The NGOs will have new partners in the field and there will be a new spirit of working in non-traditional, less bureaucratic, non-governmental ways.

*Without a doubt, the success of IMT will cause donor organizations to line up at MWRI's front door looking for ways to get involved and share in the credit.* Donor organizations are constantly looking for viable ways to invest in innovative water management reforms. However, the attraction will not be rewarded with investment unless it is presented efficiently and effectively. IMT's expansion can be accelerated with more financial and technical assistance from donors. The MWRI should not wait for that support to just show up at the door. It must aggressively pursue it through a proactive IMT/PAC.

Because politicians and elected officials vote on enabling legislation, they are a high priority audience in the short-term. Even though the regulations may need to be reformed and amended, the law is in favor of IMT. Nevertheless, some politicians might promote a platform contrary to IMT policy as a ploy to rally votes. Strong efforts must be made to reach politicians to help them understand the importance of the new program in promoting sensible water management, jobs and economic development in Egypt.

Industries and municipalities can eventually play a role in financing some of the costs of IMT/PAC, if they are convinced that the program is paving the way for more secure water resources for them and their new industrial ventures. They are not an essential group to target in the short-term, but as IMT grows in importance, certain entities in industry will want to link their name to it. As such, they will become a viable source of alternative funding for IMT/PAC activities.

### The General Public

The largest segment of the population being targeted by IMT/PAC is one we refer to as the general public. These are individuals who don't

traditionally know they have a vested interest in IMT. It is up to the IMT/PAC team to convince the people of this group that IMT is vital to their future. Although this target group may seem relatively unimportant for IMT objectives at the outset, without its support, IMT could suffer. Public opinion can influence the mood and attitudes of all of the target groups. The General Public can fuel controversy and create difficult obstacles for innovative work. The IMT/PAC must engage them early and keep them “involved” before they form misconceptions and prejudices about IMT.

The general public tends to respond better to *concepts* rather than details. This target group will need materials that are more general in nature, with a strong emphasis on user friendliness. The IMT/PAC should make sure that the goal remains to promote understanding. Global issues such as water usage and conservation can cushion the more specific details about IMT. When dealing with those in the General Public, the goals are for them to:

- understand concepts and benefits,
- promote acceptance and support,
- not create problems, and
- be influential with politicians.

## **27.6 Perceptions and Misconceptions of the Audiences**

The IMT/PAC must monitor, understand and respond to perceptions and misconceptions in each of the various target groups, providing the information people need so their perceptions conform to reality.

Some general perceptions about water issues and IMT will work to the benefit of the IMT/PAC. When the target audience is fully aware of the existing water problems and the potential for crisis, it becomes engaged in the problem. Some people know that the current means of water management is inefficient and bureaucratic and “*something must be done*”. It is up to the IMT/PAC staff to persuade everyone that IMT is a likely solution to a big problem.

Some general misconceptions exist among all of the target groups about IMT and water issues. One major misunderstanding is that there is no real water problem. The Nile looks the same now as it did last year and even twenty years ago. Another misconception is that water supply depends only on the good will of the government. Some may think that IMT is only an attempt by the GOE to begin selling water and generating money for other purposes. Farmers may consider that IMT is too expensive and the responsibilities are too great. Some may believe that without the government backing, the system of irrigation is bound to collapse.

A list of perceptions and misconceptions of each target group, as determined through interviews and several brainstorming sessions of the working group, is included in

appendix C. These should all be considered when composing the messages and content of the communications tools to be used for IMT/PAC.

## **27.7 Incentives and Disincentives**

It is not only how a person perceives an issue that determines his/her attraction or openness to it. Issues or ideas transport value for all target audiences. These benefits, if strong enough, can even be the sole attraction to the program. Therefore, IMT/PAC must clearly understand these incentives and be sure to highlight them at every opportunity. Likewise, the disincentives must not be ignored. By considering the disincentives of participation in IMT when tailoring the messages, the PAC can better position the incentives in presentations so as to attract more attention.

The Working Group identified some of the incentives and disincentives of participating in and supporting IMT. (See Appendix D for a list of findings) These can be very subjective according to the group, and even the subgroup. A farmer might not care whether IMT in Egypt draws from the experiences of similar irrigation programs in thirty other countries around the world. The real benefits the program has for him/her in terms of irrigation efficiency may serve as a stronger message.

## **27.8 Program Goals for Target Groups**

Based on the information gathered and analyzed, a list of program goals has been formulated for each target audience. These goals represent the general objectives of the IMT in the short, medium and long-term. They are as follows:

TARGET	PROGRAM GOALS
1. FARMERS	<ul style="list-style-type: none"> <li>▪ Understand IMT policy (costs, benefits, responsibilities of farmers/gov.)</li> <li>▪ Accept IMT policy</li> <li>▪ Confidence-building</li> <li>▪ Successful participation in IMT</li> <li>▪ Increased irrigation efficiency profiles</li> <li>▪ Improved living standards</li> <li>▪ Collaborate and become means for promoting IMT in other areas</li> </ul>
2. PRESS & MEDIA	<ul style="list-style-type: none"> <li>▪ Understand concepts and benefits</li> <li>▪ Become a vehicle for IMT dissemination</li> <li>▪ Partnership in IMT</li> <li>▪ Positive frequent coverage</li> </ul>
3. RELIGIOUS BODIES	<ul style="list-style-type: none"> <li>▪ Understand country's water problems</li> <li>▪ Understand concepts and benefits of IMT</li> <li>▪ Accept and support that IMT helps socio-economic situation</li> <li>▪ Partnership in IMT</li> <li>▪ Become a vehicle for dissemination of IMT material</li> </ul>
4. MWRI	<ul style="list-style-type: none"> <li>▪ Understand IMT policy (costs and benefits)</li> <li>▪ Accept IMT policy</li> <li>▪ Confidence-building</li> </ul> <p><b>Senior Officials and Middle Management</b></p> <ul style="list-style-type: none"> <li>▪ HRD (to become allies and promoters)</li> <li>▪ Support and facilitate implementation</li> </ul> <p><b>Engineers and Field Staff</b></p> <ul style="list-style-type: none"> <li>▪ Understand new roles (dispelling of fear)</li> <li>▪ Greater cooperation and coordination</li> <li>▪ Be trusted by BCWUAs</li> <li>▪ Enthusiasm</li> <li>▪ HRD</li> <li>▪ Greater work satisfaction</li> <li>▪ Stronger irrigation extension structure</li> </ul>

TARGET	PROGRAM GOALS
<p>5. ENGAGED PUBLIC</p> <p>– MALR</p> <p>- <i>Ministries of Education, Sports, Youth, Culture</i> (schools, universities, community centers, sports clubs and cultural venues)</p> <p>– Ministries of Environment, Planning and Finance, Transportation, Interior</p>	<ul style="list-style-type: none"> <li>• <b>Officials (central level)</b> Understand new policy Accept and support IMT Dispelling fears Cooperation, harmony, synchronization</li> <li>• <b>District/local level field staff</b> Understand new policy Accept and support Dispelling Fears Participation (will and action) Collaboration</li> <li>• Understand country's water problems</li> <li>• Understand concepts and benefits of IMT</li> <li>• Accept and support IMT</li> <li>• Dispel Fears</li> <li>• Cooperation, harmony, synchronization</li> <li>• Participation (will and action)</li> <li>• Collaborate and become a vehicle for dissemination of IMT material</li> <li>• Understand country's water problems</li> <li>• Understand concepts and benefits of IMT</li> <li>• Accept and support IMT</li> <li>• Dispel Fears</li> <li>• Cooperation, harmony, synchronization</li> <li>• Participation (will and action)</li> <li>• Understand concepts and benefits</li> <li>• Acceptance and Support</li> <li>• Partnership in IMT</li> <li>• Become a vehicle for dissemination of IMT material</li> <li>• More financial and technical assistance</li> <li>• More flexibility in implementation</li> <li>• Understand concepts and benefits</li> </ul>



## 27.9 Communication Tools

The MWRI has designed, developed and produced a set of innovative and attractive print tools for the Public Awareness Campaign. The initial communications tools are part of the Pilot Program. The elements of the expanded program must be designed to work together, to complement one another in such a way that the whole is greater than the sum of the parts. The following chart includes suggested tools for production in the months to come.

TARGET	IMT/PAC TOOLS
1. FARMERS	<ul style="list-style-type: none"> <li>▪ Investigation form (Opinion polls: IMT information services)</li> <li>▪ Inserts delivered with electric/water/telephone bills</li> <li>▪ Calendars featuring optimal irrigation system management</li> <li>▪ Video Programs to be used for discussions/meetings</li> <li>▪ PSAs on local TV stations (farmers/spouses/children)</li> <li>▪ TV/Radio programs (example: <i>Ser el Ard</i>)</li> <li>▪ Direct meetings; one-on-one talks, simple and humble</li> <li>▪ Group meetings, Focus groups, Information days</li> <li>▪ Ongoing extension services, one-on-one and group</li> <li>▪ Activities at BCWUAs meetings targeting awareness</li> <li>▪ Topical speeches by Imams at Friday prayer/Priests at Sunday worship</li> <li>▪ Competitions for irrigation system management: "best maintained system", "cleanest canals", "best pump maintenance", etc.</li> <li>▪ Children's activities: <ul style="list-style-type: none"> <li>- Children's drawing and writing competitions</li> <li>- "Water conservation clubs" for children in community centers</li> </ul> </li> </ul>
2. PRESS & MEDIA	<ul style="list-style-type: none"> <li>• Print material: fact sheets, investigation form (Opinion polls: IMT information services)</li> <li>• Press releases, sound bites</li> <li>• Photo packages</li> <li>• Video Program to be used as anchor for discussions/meetings</li> <li>• Talk shows on TV and Radio: example: <i>Sabah El Kheir</i></li> <li>• Web site (providing weekly/monthly news)</li> <li>• Round table talks/meetings/workshops</li> <li>• Periodical site visits and study tours</li> <li>• Visit IMT programs abroad</li> <li>• Invitations to attend events, demonstrations, activities</li> </ul>

TARGET	IMT/PAC TOOLS
	<ul style="list-style-type: none"> <li>• Journalism competitions: most accurate and frequent coverage wins the journalist a trip to IMT project abroad</li> <li>• Certificates of appreciation: Monthly notice of noteworthy press coverage (this could also be posted on the web site)</li> </ul>
3. RELIGIOUS BODIES	<ul style="list-style-type: none"> <li>• Print material: newsletters, investigation form (Opinion polls: IMT information services)</li> <li>• Video Program to be used as anchor for discussions/meetings (with endorsement of President of Azhar, other imams and priests)</li> <li>• Site visits</li> <li>• Presentations at annual religious meetings</li> <li>• Seminars (in each target area)</li> <li>• On-going dialogue/relationship with President of Azhar University and leaders of Christian community</li> </ul>
<p>4. MWRI</p> <p><i>A . Senior Official s and Middle Management ent</i></p> <p><i>B . Engineers and Field</i></p>	<ul style="list-style-type: none"> <li>• Printed materials: newsletters, investigation form (Opinion polls: IMT information services)</li> <li>• Video Program to be used as anchor for discussions/meetings</li> <li>• Web site</li> <li>• Workshops (dealing with on-going IMT topical issues)</li> <li>• One day Focus Group meetings at MWRI headquarters</li> <li>• Site visits</li> </ul> <ul style="list-style-type: none"> <li>• Printed materials: newsletters, investigation form (Opinion polls: IMT information services)</li> <li>• Video Program to be used as anchor for discussions/meetings</li> <li>• Seminars/workshops (on-going topical IMT issues)</li> <li>• Meeting at their offices (focus groups)</li> <li>• Advertising in engineers magazines</li> <li>• Visits to other sites</li> <li>• Competitions/ rewards for irrigation system management: "best maintained system", "cleanest canals", "best pump maintenance", "engineer of the month", etc.</li> </ul>

TARGET	IMT/PAC TOOLS
<i>s t a f f</i>	
<p>5. ENGAGED PUBLIC</p> <p>– Other Ministries</p>	<ul style="list-style-type: none"> <li>• Print materials: newsletters, technical reports/fact sheets/ relevant IMT reports, investigation form (Opinion polls: IMT information services)</li> <li>• Video Program to be used as anchor for discussions/meetings</li> <li>• Web site (post noteworthy collaboration between Ag and Water engineers)</li> <li>• Seminars/workshops presentations, held by representatives of IMT</li> <li>• Round table talks</li> <li>• Focus group meetings (extensive and ongoing dialogue)</li> <li>• Site visits for representatives of the Ministries</li> <li>• Invitations to attend events, demonstrations, activities</li> <li>• Advertising in engineers magazines, environmental and educational publications</li> <li>• Ministry exchanges (engineers from the MWRI spend a day with representatives of others)</li> </ul> <ul style="list-style-type: none"> <li>• Printed materials: handouts, newsletters, technical reports (selected), fact sheets, leaflets (to introduce activities), investigation form (Opinion polls: satisfied/support IMT/against)</li> <li>• Video Program to be used as anchor for introduction/discussions/meetings</li> <li>• Web site</li> <li>• Meetings through direct contact (one-on-one)</li> <li>• One day group meetings at MWRI headquarters</li> </ul>



TARGET	IMT/PAC TOOLS
– Industry	
6. GENERAL PUBLIC	<ul style="list-style-type: none"> <li>• Print material: inserts (in magazines, newspapers, etc.), annual or bi-annual achievement reports, trading cards, more children's activity booklets, books about the Nile (for distribution and sale), magazines (for distribution and sale), posters, billboards (Distributed at family centers for women, Ag offices, Health clinics, Libraries, Schools, Community Centers, Boy Scout Centers, NGO offices, Churches, Mosques, Electricity Bill collectors, etc.)</li> <li>• Press coverage, press releases, sound bites <ul style="list-style-type: none"> <li>▪ Weekly youth column in major newspapers</li> <li>▪ Weekly water engineer column in major newspapers</li> <li>▪ Advertising (in magazines, newspapers, etc.)</li> </ul> </li> <li>• Broadcast media campaigns - blitzing the airways with all related material <ul style="list-style-type: none"> <li>▪ Video Program to be used as anchor for talk shows such as <i>Sabah El Kheir</i></li> <li>▪ Musicians, movie stars, national figures and football celebrities should act as spokespeople for IMT, MWRI and water conservation</li> <li>▪ Politicians speaking in TV/Radio talk shows</li> <li>▪ Feature stories and documentaries about IMT, water issues, the Nile, etc.</li> <li>▪ Radio Program to be used as anchor for talk shows</li> <li>▪ TV programs/serials/segments for other programs</li> <li>▪ TV and radio spots, music video clips</li> <li>▪ Televised round table discussions that include farmers and MWRI officials/engineers/field workers. Audiences selected from a broad base, could enhance a dialogue about IMT, making the ideas more accessible</li> <li>▪ Original musical scores</li> </ul> </li> <li>• Web site, providing general information and offering a venue for children's clubs on web site</li> <li>• Children's activities</li> </ul>

TARGET	IMT/PAC TOOLS
	<ul style="list-style-type: none"> <li>▪ Drawing and writing competitions</li> <li>▪ "Water conservation clubs" in community centers</li> <li>▪ Family libraries and reading for all programs, and educational activities</li> <li>• Miscellaneous activities <ul style="list-style-type: none"> <li>▪ Lectures in clubs, youth centers, universities, unions, civil society Organizations, etc.</li> <li>▪ Staged activities and events: inaugurations, signing ceremonies, water day youth celebration event and conferences/seminars.</li> <li>▪ Water users lotto - with cash/gift awards</li> <li>▪ NGO activities, for example, scouting awards for conservation leadership</li> <li>▪ Ad Specialty items: calendars, pencils, balloons, to be given away at MWRI events or popular gatherings</li> </ul> </li> </ul>

### Print Materials

Printed Materials are useful for communicating information about the particular characteristics of IMT, how to participate, where to go and whom to contact for more information. Print is the best way to communicate hard information like facts and figures, terms, rules and regulations, lists and addresses. It is also good for explaining risks and rewards, incentives and other information focusing on why people should participate. Because print materials can be taken back into the home, they have a long life relative to other tools.

It is expensive to create large quantities of effective print materials. When choosing to produce certain items, vigilant regard for detail in content, presentation and theme must be a guiding motto of the IMT/PAC Team. Mistakes are extremely expensive and often impossible to correct. If the appropriate attention is given to print materials during design and production, these materials will serve the IMT/PAC well. They will not only serve the informational needs of the target groups, but also establish a strong foundation on which all other program materials and activities can be based.

### Press and Broadcast Media

Press and Broadcast Media are best at reporting on news events, changes in policy and clarification of policy, new rules and regulations and general information. The media in Egypt is competitive and often politically motivated. In order to reach a broad spectrum of audiences, material must be disseminated to all legitimate press and media organizations.

While no media organization should be ignored, the IMT/PAC should take advantage of television and radio shows that are good venues for information about IMT and water issues. Programs to pursue include talk shows and other programs that appeal to

farmers, such as *Sir el Ard*. The team learned from interviews with farmers that some educational shows are broadcast at inconvenient times, such as 16:00. Television shows should be aired at a time when the target audience is able to view it.

Existing talk shows could also be approached with the idea of round table discussions about water issues. To make the most of such opportunities, a short video program about IMT could be used as an anchor or centerpiece for the discussion. After the brief video presentation, a panel of participants representing the MWRI officials/engineers and farmers could entertain questions by telephone or from the audience. This audience could be filled with a variety of target group representatives.

There are also television programs that have mass appeal to children. The "*World of Sesame*" is a new Egyptian production that has had wonderful results in reaching local children. Shows like this have already established themselves as popular and effective in reaching children. Such educational programs could be approached with the idea of incorporating water issues into their programming.

Press representatives might be willing to run weekly columns on topics related to IMT and water issues if they receive the information in easy to use modules. It's not difficult to develop such modules from the print materials. Modules and similar inquiry response packages will make the process of communication very fluid and less demanding on the IMT/PAC Team.

A clipping service is an essential function of a communications program. Positive stories and news must be circulated quickly and monitored. Negative stories and criticisms must be addressed directly and quickly, as well. Donor organizations like press clippings.

Because the attention of readers may be drawn to other, more sensational elements in the news, efforts must be made by the MWRI communications staff to write news releases in such a way that they connect the information to common interests, such as jobs and economic development. The future of the Nile and how its resources are being better maintained is a compelling topic for most Egyptians.

### Government Agencies

Government Agencies can be quite useful for distributing information. People are accustomed to receiving information from government offices. There are a variety of government agencies that can be helpful in getting information out to the target audiences and to the public. Some of these agencies have more resources than others. Some do the programming for the government TV channel, and they also feed broadcast material to commercial stations.

### Educational Structure

Education is one of the most important venues for elevating long-term public awareness about water issues. Curriculum materials for classrooms and students of all ages can raise the public awareness about IMT and related water issues among the future generation of Egyptians. The IMT/PAC should constantly look for ways to use the formal educational structure to reach children. IMT/PAC should begin to lobby for

innovative curriculum to present new water issues and new government policies. Changing textbooks doesn't happen over night. Nor does it happen often. An effort must be made for IMT to make it into the next revisions.

Universities could be encouraged to give diplomas in IMT and to support research projects about related water issues. The long-term impacts of IMT/PAC depend on the solid investments made now in winning the educational system as an ally.

## **27.10 Basic Principles of IMT/PAC**

The following is a list of the basic rules IMT/PAC should adhere to in its design and implementation.

- Build a broad consensus in favor of the development of IMT and the supporting infrastructure.
- Be direct, forthright and positive in presentation. The basis of the communication program should be honesty, frankness and openness. The credibility of the communication program is one of its primary assets.
- Emphasize the socio-economic development and the future growth of Egypt.
- All information should be factual, presented in a neutral tone, and it should be positive but not promotional. It is perfectly acceptable to adopt promotional techniques from the commercial sector in order to best "market" IMT ideas. However, all attempts should be made to shy away from appearing promotional or commercial.
- Develop formal and informal systems for listening to the various audiences.
- Orchestrate the campaign in a way that serves the short-term, medium-term, and long-term priorities of IMT. Constant attention should be given to this master plan when making any IMT/PAC decisions or producing any of the tools.
- Never compromise the look of the program on any related material: banners for workshops, printed documents, video material, etc. If a printer doesn't get the exact colors right, don't accept the work. If the logo is deformed, send it back. *There is no room for a "ma'alesh" attitude when trying to present a comprehensive program.*

### Tools for the Medium and Long-Term

Most of the tools used in the short-term can be replicated for the medium-term and some of them will remain valuable for the long-term. This is where good listening skills will be essential for the successful continuation and growth of the program. It is only through studying the impact of the materials in the short-term, through formal and

informal research, that MWRI will be able to make improvements on the material it creates for the medium and long-term. Almost all of the material will need frequent upgrading in terms of content. If the IMT/PAC successfully communicates the desired messages to the desired audiences, the materials produced in the beginning will no longer be needed. As the demands of the target groups change, the content and messages, and sometimes the tools, must change as well. Other materials will be needed to address the new questions that are arising or the new policies/issues that develop as the program grows.

Replication of the pilot program for expanded audiences all over the country in the medium and long-term will require a considerable investment in all areas of communications. It is highly recommended that more investment be put into broadcast media in the middle and long-term. The costs of doing the proper mass media campaign are too high to take on in the pilot program during the short-term. However, after IMT has taken off all over Egypt in the medium-term, the benefits and messages of the program can be broadened to help support more global issues about water conservation and usage. By highlighting the success stories around the country, IMT/PAC can become a vehicle for greater public awareness about all sorts of water issues. Private corporations should be recruited to the cause. Space has been left on all print prototypes for labels of donor organizations. IMT/PAC can be a vehicle for private companies to advertise their interest in social programs.

### **27.11 Centralized Production**

It is of crucial importance that the design and production of the basic information about IMT continue to be centralized within the MWRI Communications Unit, or contracted to the Graphic Design firm that put together the pilot, Amr Thakeb. This is the best way to maintain quality control and to guarantee accuracy and consistency in terms of information, content and look. It is also the best way to develop and maintain “brand awareness.” Although the MWRI might have to sub-contract production to video production companies, Amr Thakeb should be considered a team member in any continued development. The IMT/PAC team, along with the Communications Unit of the MWRI, should maintain complete control of this process, constantly monitoring the products and assuring conformity to the IMT/PAC master plan.

The MWRI Communications Unit has produced many beautiful communications materials over the past few years. With some investment in human resource development and financial backing, a permanent IMT/PAC team can be created. Four PR professionals should be recruited (with graphic design, writing,, organizational and creative skills) to take full-time responsibility of IMT/PAC. They can work with four representatives of the Communications Unit to launch and begin implementing IMT/PAC. It would not be wise to consider IMT/PAC activities as something the Communications Unit takes on as one of its many additional tasks. This program will demand the attention of full-time staff and several part-time workers. In order to be as proactive as need be, IMT/PAC must be the number one priority for whoever is implementing it.

Effective communications campaigns cannot be realized by volunteers or by working groups that meet once a week. It's a full-time job and if not taken seriously, it will

never achieve maximum capacity. A strong, well-trained and well-focused IMT/PAC Team could effectively do the job.

## 27.12 Decentralized Distribution of Information

Once the communications tools have been published, it is crucial to get them into the hands of the people who need them. Because of the limited staff of the proposed IMT/PAC team and the difficulties of distributing information on a broad basis in Egypt, it is crucial that the MWRI enroll a wide variety of partners in the dissemination process. The MWRI can take advantage of distribution networks that are already in place in government agencies, religious bodies, the media and private sector organizations. These organizations have newsletters, monthly and annual meetings, mailing lists, and other networking resources that can be harnessed for informing people about IMT. The MWRI Communications Unit should develop ties with the information departments of organizations such as those below to reach all the target audiences.

<b>MEDIA ORGANIZATIONS</b>	<b>GOVERNMENT ORGANIZATIONS</b>
Newspapers	Government information services
Magazines	Ministry of Information
Television	Ministry of Youth
Radio	Ministry of Education
Journals	Ministry of Health
Internet	Ministry of the Environment
<b>COMMUNITY-BASED GROUPS</b>	<b>OTHERS</b>
Youth clubs	Libraries
Sports clubs	Schools and universities
Non-governmental entities: Red Crescent Society, Social Fund for Development, etc.	Professional Associations: Syndicates of Engineers, Agronomists, Lawyers; Union of Engineers; Bar Association
Scouts	Finance centers
Civic clubs	Traveling theatre groups
Electricity associations	Musicians
Mosques and Churches	Entertainers
Parent/teachers associations	Health clinics

Finding creative ways to use these networks will accelerate the distribution of the information and improve the impact of our message. For example, if electric associations in rural areas can reach many farmers through the billing process, they might be able to distribute post cards or notes to inform people about IMT in general or a special event in particular. If those who receive the card are interested in learning more, they could contact a number provided on the card or fill out the card and mail it in to request specific information. A person who requests information is taking an active role in the communications process and is much more likely to value the distributed material.

### Direct Contact

The MWRI should use every opportunity possible to have direct contact with people about the issues. The most effective way to reach large numbers of people directly is to give speeches to organizations at their meetings or in whatever other venues present themselves. The MWRI must develop a systematic approach to getting key officials or irrigation engineers in front of targeted audiences to promote IMT.

Sending spokespersons to address audiences is a time-consuming, difficult task, but it is very worthwhile. This direct contact is important for two reasons: (1) it is interactive; people can ask questions, and (2) it demonstrates commitment, a very important ingredient in communication. The fact that someone would take the time to go out and speak about IMT and related water issues suggests that he or she cares about the addressed group and is interested in meeting them directly. Most Egyptians sense the importance of something by the amount of time devoted to it.

From the IMT/PAC team's standpoint, direct contact provides an excellent opportunity for listening to the concerns, questions and interests of target groups. The spokesperson may, from time to time, end up in front of a hostile audience. It is very important to listen closely to the complaints. Often, but not always, the hostility may be the result of a correctable misconception. Staying calm and discussing the issue might lead to its solution.

### **27.13 Proposal of Theme**

#### Solidarity

The first proposal is to create a campaign based on the unity of all sorts of people from all sorts of backgrounds in Egypt. The idea would be to present a unified Egypt in the IMT cause. The faces of these people would be on all print material. Their images and voices would be used for the video program and the television/radio spots. They would be the common voice of the program: the MWRI is not presenting IMT to all the targets, the people of Egypt are. MWRI would showcase in its video and print material all varieties of Egyptian people "standing up" as a sign of support for the farmers and other target groups. Hooking the audience with their concern and display of support, they would seem to entertain somehow by their friendliness and portrayal of a better future. All the while they are transferring the necessary information about water issues and IMT, perhaps through narration, maybe through the text printed next to their photo. There would be no jokes, only people talking to people as normally as possible. There must be a feel of nature and spontaneity in their tone and appearance, i.e. nothing overdone. Among the group could be a farmer, an accountant, a school girl, a grandmother, a teacher, an Imam, an irrigation engineer, the minister of MWRI, a famous actor, a famous singer, famous football players, etc. The idea is to be as varied as possible and to bring in a few celebrities for their endorsement as well. These are the people of Egypt, and they represent Egypt. IMT is their program---**All for One.**

#### Future

The second proposal works around the theme that IMT is the future of Egypt. This is the program that will provide Egypt security in the years to come. MWRI would then present all of the program material using children and youth between the ages of ten and fifteen. Boys and girls of all backgrounds will communicate IMT to all of the target audiences. Images of their faces will be the hooks for the print materials. They will be encouraging and enthusiastic, promoting a program that would help make their future a better place. For most target audiences, the tone will be children encouraging parents to do something for their future, speaking as if requesting a favor or support. For the audiences that involve children, the young spokespersons for IMT will speak like one friend to another. Once again there would be no drama and no comedy; nothing unnatural.

### Farmers Know Best

The third proposal is one that is "farm-based". The idea is to have farmers and agricultural sector people presenting IMT to all of the target audiences. Images and sounds of all sorts of farmers and "agricultural produce people" would appear on all print items. The images could be of farmers speaking together or speaking into the camera. Close-up shots are preferred, ones that capture the expression and wisdom in the eyes of country folk, and images of farmers speaking naturally as if unaware of the camera. Female farmers and wives would also take part as well as a few children. Irrigation Engineers could also speak from their perspective. The content of the images would be classic but artistic in presentation. Talking the program through, a group of farm related characters would share IMT and its importance with everyone.

## **27.14 Informational Content of the IMT/PAC**

### Short and Medium-term Messages

The educational tools developed for each of the target groups of this program will differ in content, based on the specific information needed, and messages will need to be modified to the growing needs of the program.

The following chart identifies messages that will best answer the basic frequently asked questions (FAQ) about IMT. These are messages that are needed by all audiences targeted. The subsequent list represents the basic messages for all target groups in the medium-term.

### **General messages for all target groups in the short-term:**

- *Status of the current irrigation and drainage network, presentation of current situation and problems of farmers, limitations of MWRI in managing irrigation efficiently*
- *There is only one NILE and water resources are limited.*
- *The Egyptian population is growing, water resources are not.*
- *Water resources will become more scarce in the future.*
- *Traditional ways of irrigation need amending to serve the growing population in Egypt. IMT should not be regarded as a radical change. Everything it promotes is in harmony with Islam/Christianity/sound agricultural practices and the pursuit of a better life for farm families.*
- *IMT can help in solving problems.*
- *The concept of IMT: present information to achieve full understanding and build consensus on need for IMT to manage problems/improve water usage.*
  - *Effectiveness*
  - *Efficiency*
  - *The ability to solve on-farm and branch level network problems, both technical and financial*
- *Reasons for adopting IMT policy*
  - *Mechanism*
  - *Benefits: water conservation, better management*
  - *Costs*
- *A future vision of water management system*
- *Decentralization and greater role of local community in water affairs.*
- *New trends for efficient management: participation approach.*
- *Examples from other countries and outline the correlations and advantages of IMT on the basis of Egyptian conditions.*
- *IMT achievements in Egypt so far.*
- *The MWRI is being intelligent, transparent and forthright in moving forward with IMT. IMT is best for the farmers, and they will gain the most from this program. IMT is also great for the MWRI and the country.*
- *Changes and amendments in laws and regulations have made IMT possible. IMT is a national program and not just the whim of several irrigation engineers or the current MWRI administration.*
- *IMT leads to saving water and this allows flexibility for other projects.*
- *MWRI is NOT selling water. The services of improved transport of water and more efficient irrigation management have a price.*
- *Roles/ Responsibilities of the MWRI staff under IMT must be detailed, stressing the ministry's continued support to farmers and that engineers will still be needed in the field. IMT will need the continued support of MWRI to succeed.*
- *Government is still a partner to farmers.*
- *Additional information about IMT is easy to obtain (web site, communications unit).*
- *MWRI Communications Unit appreciates feedback on its efforts to communicate the issues of IMT.*

### **Basic FAQ New Messages for all Target Groups in Medium-term:**

- ? *Success stories and experiences from the pilot*
- ? *Stories about BCWUAs: challenges, problems and successes.*
- ? *New outlets of information distribution (schools, clubs, etc.)*
- ? *Possible new activities of BCWUAs, after the water issues are in order.*
- ? *New challenges and possible obstacles.*
- ? *Trouble areas and suggestions of how to cope through improved collaboration.*
- ? *Stories about MWRI officials and IMT working group, highlighting their commitment to innovation.*
- ? *Stories about engineers in the field, challenges and rewards of implementing IMT.*
- ? *Interviews with Agricultural Engineers/personalities from the Ministry of Agriculture highlighting their impression of IMT, both negative and positive impressions.*
- ? *Stories about how the Ministry of Education, schools and universities have participated in IMT.*
- ? *Children's stories about IMT.*
- ? *Stories about how Ministries of Youth, Culture and Sports (and clubs and venues) have participated in IMT.*
- ? *Stories about how the Press and Media have participated in IMT.*
- ? *Stories about how NGOs have participated in IMT.*
- ? *Stories about how Politicians have participated in IMT.*
- ? *Stories about donations to and partnership in IMT implementation.*
- ? *Stories about how Religious Groups have played a role in IMT.*

### Long-term Messages

Long-term messages should be decided upon after paying close attention to the communications needs of the target groups and how they responded to the initial messages. Formal and informal means of assessing the effectiveness of the IMT/PAC in the short and medium-term will indicate what messages are needed in the long-term. The IMT/PAC should listen, listen, and listen.

### **27.15 Anticipated Problems and Obstacles**

One should always anticipate problems when creating communications material to avoid the surprise and inability to adapt to something not thought of. Below are some of the problems that should be considered when designing the Pilot Program materials in order to avoid obstacles from the beginning. When problems do arise, the IMT/PAC should be sensitive enough to respond by modifying and improving messages.

TARGET GROUP	ANTICIPATED PROBLEMS AND OBSTACLES
1. FARMERS	<ul style="list-style-type: none"> <li>• Lack of understanding, cooperation and participation</li> <li>• Priority of task management by BCWUAs (Board member takes care of his concerns first and neglects the interest of all)</li> <li>• Farmers/BCWUAs not used to dealing with banks</li> <li>• Disorganization in money collection/management</li> <li>• Head farmers see no need to change the system, they have all the water that they need (nothing wrong with the status quo)</li> <li>• Flow of information not fluid enough to maintain support of informational needs.</li> <li>• Managerial and financial responsibility</li> </ul>
2. PRESS & MEDIA	<ul style="list-style-type: none"> <li>• Bad press coverage, not appropriate or no coverage</li> <li>• Flow of information not fluid enough to maintain interest, lack of access to it</li> <li>• Financial resources to transport journalists on travel</li> <li>• High level officials who should be supporting the IMT are hesitant to stand up for IMT, lack of courage to support IMT vocally, maybe this is a lack of trust in IMT or a confusion of this with other MWRI programs</li> <li>• Safe centralized distribution is preferred as opposed to better access in a decentralized distribution structure</li> <li>• Lack of transparency</li> <li>• Favoritism of friendly press over opposition press</li> <li>• IMT will be a new topic for all, reporting on it should have begun a long time ago.</li> <li>• Misinformation could lead to distrust in program</li> </ul>
3. RELIGIOUS BODIES	<ul style="list-style-type: none"> <li>• No support</li> <li>• Will regard IMT as a program not beneficial to Egypt</li> <li>• Misinformation could generate a distrust in IMT</li> <li>• Flow of information not fluid enough to maintain interest</li> </ul>
4. MWRI	<p><b>Senior Officials and Middle Management</b></p> <ul style="list-style-type: none"> <li>• Financing sustainable implementation of IMT Policy</li> <li>• Low enthusiasm to adopt IMT (lack of interest) Insufficient coordination between MWRI sectors and departments</li> <li>• Confusion of IMT with other MWRI programs</li> <li>• Competition of programs within the MWRI</li> <li>• Officials can only speak from their own backgrounds, not</li> </ul>

TARGET GROUP	ANTICIPATED PROBLEMS AND OBSTACLES
	<p>knowing IMT well enough to defend it</p> <ul style="list-style-type: none"> <li>• Law about IMT not clear</li> <li>• Understanding that IMT is a national project, not a policy</li> <li>• Hierarchy of priorities for MWRI</li> <li>• Flow of information about IMT not fluid enough to maintain program as priority</li> </ul> <p><b>Engineers and Field Staff</b></p> <ul style="list-style-type: none"> <li>• Lack of commitment to the program</li> <li>• Misunderstanding of IMT policies</li> <li>• Confusion of IMT with other MWRI programs</li> <li>• Flow of information not fluid enough to provide them necessary tools/support</li> </ul>
5. ENGAGED PUBLIC	<p>OTHER MINISTRIES</p> <ul style="list-style-type: none"> <li>• Misinformation for district level field staff may negatively affect their confidence and that of the farmers in IMT</li> <li>• Conflicts between ministries and author</li> <li>• Flow of information not fluid enough to maintain interest</li> </ul> <p><b>NGOs</b></p> <ul style="list-style-type: none"> <li>• Lack of NGO support or participation</li> <li>• Flow of information not fluid enough to maintain interest</li> <li>• NGOs might not consider BCWUAs as an NGO because they are not registered with the Ministry of Social Affairs.</li> <li>• BCWUAs do not behave according to NGO guidelines...perhaps they could become politically active and frighten-off collaboration.</li> </ul> <p><b>POLITICIANS</b></p> <ul style="list-style-type: none"> <li>• Criticism of IMT could advance the political campaigns of opposition</li> <li>• Politicians become more concerned with risks than benefits</li> <li>• Flow of information not fluid enough to maintain interest</li> </ul> <p><b>DONOR ORGANIZATIONS</b></p> <ul style="list-style-type: none"> <li>• Misinformed donor</li> </ul>

TARGET GROUP	ANTICIPATED PROBLEMS AND OBSTACLES
	<p>agencies may reject proposals to support IMT and dissuade other donors, generating a general lack of confidence.</p> <ul style="list-style-type: none"> <li>• No interest or support</li> <li>• Regard that IMT is not right for Egypt</li> <li>• Not able to differentiate between MWRI programs</li> <li>• MWRI will propose competing programs for funding</li> <li>• Flow of information not fluid enough to maintain interest</li> <li>• Misunderstanding of the Egyptian Case and environment.</li> </ul> <p><b>INDUSTRY</b></p> <ul style="list-style-type: none"> <li>• Not taking the IMT program seriously</li> </ul>
6. GENERAL PUBLIC	<ul style="list-style-type: none"> <li>• MWRI hiding the truth or afraid to speak about problems</li> <li>• Hesitancy to be 100% transparent</li> <li>• No courage to be pioneers and take the risk</li> <li>• General public may influence their representatives and politicians negatively, who could then reject IMT</li> <li>• Flow of information not fluid enough to maintain interest</li> <li>• Misinformation could lead to distrust in program -- trust of public is easily destroyed</li> </ul> <p>Lack of interest or support</p>

### 27.16 Strengthening the MWRI's Communications Unit

The Communications Unit of the MWRI is talented, motivated, and capable of delivering information about IMT to the press and all targeted audiences. Unfortunately for IMT/PAC purposes, the Communications Unit has limitations in terms of staff time and funds. This is especially true considering the complexity of dealing with many other programs at the Ministry. In order to maximize scarce manpower resources, the Communications Unit must do as much as possible to streamline procedures, develop and maintain an up-to-date mailing list and systematize the production and distribution of information. The IMT/PAC will need to engage at least four full-time public relations specialists to devote themselves solely to this program. They, in collaboration with four part-time members of the Communications Unit, will form the IMT/PAC Team.

In the short-term, especially during the initial production and dissemination, it is strongly recommended that several people from the Communications Unit work halftime on the IMT/PAC with these four staff. This team should include an associate with desktop publishing skills and others with good writing, editing and organizational skills. Once information delivery systems have been established, the IMT/PAC team should be able to function with this small staff up into the medium-term when IMT

begins to grow. This assumes that the Communications Unit can continue to provide part-time assistance in monitoring the press and clipping relevant articles.

The IMT/PAC team will need some basic equipment, typical of a small communications office. This will include several phone lines, a high-speed fax with large memory capacity, a desktop publishing computer, a scanner, and new software for desktop publishing, web site development and image manipulation. The Communications Unit staff has achieved a certain level of mastery of desktop publishing software. Nevertheless, given the need to generate a lot of new material, it would be worthwhile to invest in upgrading the software and giving certain staff members some training to improve their skills. It would be most efficient if the members of the IMT/PAC team were situated in close proximity to each other and their equipment.

In the medium-term, the basic objective of the IMT/PAC should be to keep positive news about the IMT in the public eye. The team must also expand the reach of the IMT/PAC to new audiences in order to promote wider participation. The team will also have to work hard to develop and maintain partnerships with the various governmental and non-governmental organizations who should be collaborating in IMT/PAC..

There are a few general principals the IMT/PAC team should follow in managing IMT/PAC:

- Listen to the target audiences, pay attention to their changing needs.
- Do everything possible to keep IMT in the public's eye.
- Use the tools as models in developing the new tools that will be required to meet the public's changing needs.
- Systematize the process as much as possible so that the MWRI can communicate with 50, 500 or 5,000 people with equal facility.
- Maintain these systems. Update the dissemination database every week.

## **27.17 Addressing Problems**

When a problem occurs that threatens IMT or people's confidence in it, the MWRI must show itself to be actively engaged in solving the problem. The public needs to know what has happened, why it is important, and what MWRI is doing about it.

Considering the short time frame between the emergence of a problem and the point where the public loses interest in the issue, the MWRI must act quickly to get its message out and show the public and the targeted audiences what it is doing about the problem. Responding to problems quickly guarantees that MWRI will maximize the percentage of the audiences it reaches. In telling its story to the press and the broadcast media, MWRI officials must decide beforehand what simple and basic messages it wants to deliver about its position on the issue.

Internal problems will need a great deal of attention also. These will require quick and efficient responses from the IMT/PAC. The following are among the possible problems that could need addressing:

- Flow of information and transparency
- Misinformation
- Lack of steady support and participation in IMT
- Distrust and criticism
- Lack of interest
- Lack of commitment
- Lack of courage

## **27.18 Developing a Crisis Management System**

One important element in MWRI's communications planning for the short, medium and long-term, is a crisis management strategy. Despite all the care and attention invested in making the IMT operate reliably, there will always be malfunctions. A clearly written crisis management plan should be developed by MWRI staff to handle any crisis that may arise. Within the plan, a list of possible scenarios should be recognized. The plan should address each possible scenario, designate a spokesperson, and identify appropriate remedial action. All members of MWRI's senior staff should participate in drafting the plan so that everyone will feel that they are part of it. The basic elements of the plan should then be communicated to middle and lower-level staff to make sure that everyone knows his or her role.

*The plan should assign clear responsibilities. It should identify who will focus on the operational side and who should explain the problem to the public. The plan should also delineate fundamental principles and procedures that will be followed in the event of a crisis.*

There are several basic principles that have proven effective in handling crises:

- Be honest, direct and frank when describing the problem.
- Respond quickly and vigorously to the problem. The worst mistake many organizations make is to focus exclusively on the operational side of solving the problem and assume that communications will take care of itself. People need to know right away what happened and what MWRI is doing about it.
- Avoid the temptation to drown the audience in technical details. Instead of using jargon to describe the problem, try to find metaphors and other simple ways of explaining it to help people understand what happened and what is being done to correct it.
- If there is anything the public can do to help the MWRI solve a problem, it needs to be explained clearly. This makes the public part of the solution.

Problems tend to get worse when an organization fails to address them directly. In effect, the lack of information creates a vacuum. In the absence of clearly articulated facts about what happened and what is being done about it, rumors and misinformation begin to fill the vacuum. This often compounds the problem and makes it harder to

solve. If rumors and misinformation develop around a problem, the MWRI should address them immediately in the press or on television.

It should be stressed again that MWRI's senior staff should participate in creating the plan. The nature of a crisis demands that the staff know what to do the minute the problem arises. For this reason the plan should be worked out in advance. This way, all that needs to be done when the crisis occurs is to modify the plan to conform to the particular characteristics of the problem.

## **28. Phase II — Design and Production**

### **28.1 Development of the Pilot Program**

In order to help in the start-up of IMT and to accelerate its growth and expansion throughout Egypt, the MWRI is moving to implement a broad-based education and information campaign that will introduce and explain the program and its role. The Pilot Program includes the production of a set of communications tools including a logo and graphic identity program, a set of brochures, an eight-minute video program and a web site that will be used collectively to disseminate information to the target audiences. The basic elements of the public awareness campaign are:

- A. The Pilot Print Materials Program
- B. The Press and Broadcast Media Program
- C. Seminars, Workshops and Information Days
- D. Other Media Programs

The various elements of this comprehensive plan are designed to complement and reinforce each other in such a way that the total will be greater than the sum of the parts. Each element of the campaign should relate to the other, both in terms of visual identity and content.

The objective of the program is to improve the level of participation in, as well as the understanding of, IMT on the part of several audiences. Farmers need to know what it means to be responsible for irrigation management. Field engineers need to know how to assist farmers in the process of adapting to IMT. An engaged public must be motivated to participate and contribute to the program's success. The prototype print communication tools produced for the Pilot Program should help to demystify IMT for all of groups targeted in the short-term. These groups need to see that IMT is a viable means of more efficient water management and water conservation.

While the proposed IMT/PAC is comprehensive and should serve the MWRI for many years, it is not definitive. IMT will expand and develop, and its requirements will change as well. Therefore, the IMT/PAC should not be static in conception or implementation. Instead, it should support the evolution of IMT and the increasing sophistication of its audience. The Pilot Program will begin the process by creating a platform for communicating new messages and reaching new audiences as IMT grows and develops. Together, the various elements of the program will give the MWRI a variety of effective mechanisms for reaching its many audiences with important information.

### **28.2 Tasks Accomplished – The Print Program is Created**

Over the past few months there has been a huge concerted effort to produce prototypes for a family of brochures united by an attractive graphic identity. The IMT working group members were called together weekly to collectively decide on a strategy and to create materials to best present the messages they deemed most important. The plan of action produced in May and June (the first phase of this assignment) was often used as

a reference to maintain focus on objectives and strategy. Copy was drafted and edited, presented and re-edited; digested and edited; placed into layout format and edited. The material was even presented to a group of farmers and ministry staff representing the four pilot areas where IMT is first being introduced. The creative process brought everyone together to contribute to the production of the prototypes that now exist. It is safe to say that the print materials as they exist today in prototype form are the most comprehensive collection of educational tools about IMT in Egypt.

The print material prototypes present the essential ideas about IMT -- those that the IMT working group wishes to communicate to each target audience. These brochures not only aim at specific audiences, they vary accordingly in levels of specificity, from the very general to the very specific. The information presented includes details about IMT and how people can participate in or support it. The printed information coupled with additional materials and activities will provide the target groups a clear understanding of how to participate in the program in the short-term. It is strongly advised to move forward during the short-term with the video program, TV spots and the workshops, seminars and information days for the full effect of a comprehensive communications campaign.

The pilot print materials represent an ambitious but very valuable and tangible program that could streamline the deliveries of information to the various groups. The following items have been designed and produced in low-resolution prototype format, within one design and under an attractive graphic identity system (Examples can be seen in Appendix F).

- Introductory Brochure
- Frequently Asked Questions (FAQ) Brochure
- Farmers' Series FAQ (4)
- Posters (5)
- Field Staff Guide
- Fact Sheets (3)
- Activity Booklet
- Sample stickers (2)
- Stationery, Envelopes and Business Cards

### Logo Design and Graphic Identity System

The production of the pilot print program began with the development of a logo and graphic identity system to help build “brand awareness” in the minds of all target groups, helping to make IMT a tangible entity. The IMT PAC hired a skilled and talented graphic designer to design a logo and establish graphic standards for all printed material..

A great deal of time and effort has gone into developing several suggestions of the best logo for this program (see Appendix F). In the long run it will be well worth the effort. The logo will be printed on all publications, will appear in videos and TV programs and will become familiar to the public. Changing it would be difficult and expensive, so there must be agreement and satisfaction with our “look” from the beginning. Before

moving forward on an expanded communications effort, the logo should be formalized. When it is complete, the new logo should be announced in a press conference.

Many institutions create a graphic standards manual to describe the design standards and printing instructions for the production of all future printed material. This is highly advised because it organizes a tool that will be used over and over, making quick access easy. Over time, the audience associates these symbols with the program, which helps to streamline the communications process.

### Introductory Brochure

An introductory brochure was created to present IMT to all of the target audiences, concentrating on general concepts, not details. This brochure gives a quick glance at IMT. It is an introduction to the program and should be considered a hook for attracting the target groups to the material that has been designed specifically for them. This booklet will best serve all literate target groups.

### Frequently Asked Questions (FAQ) Brochure

A "Frequently Asked Questions" (FAQ) booklet was created to provide general information about the IMT. This booklet was created in a traditional question-and-answer format. This brochure serves the press and media, religious groups, MWRI staff, the engaged public and the general public. It is the tool that communicates most comprehensively what IMT is all about.

### Farmers' Series FAQ

A series of tri-folds was produced to introduce IMT to farmers. Based on a modified FAQ and called the "FAQ Farmer Series", these brochures deliver all the basic information a farmer would need to participate in IMT, explaining costs, benefits, risks, opportunities, procedures etc. The series uses a large format and is carefully written and beautifully designed, with illustrations and many photos. The challenge in writing these was to find a balance between promotion and education. It was also important to be accurate without being too technical. These four user-friendly tri-folds contain the same information and messages as the FAQ. However, they are tailored for a less literate audience. The messages are divided into four topics that, when combined, deliver the essential messages of the FAQ:

Tri-fold #1: Water issues in Egypt

Tri-fold #2: Farmer participation in water delivery systems and IMT

Tri-fold #3: Costs and benefits of IMT

Tri-fold #4: IMT works parallel with Egyptian society and the wishes of water users

Knowing that some fine-tuning may be necessary before the second publication for the medium-term, it is recommended that 5,000 copies of each tri-fold be printed in the short-term.

### Posters

Five posters have been created. There are two posters that set the theme of the IMT PAC. The other three posters are based on the FAQ Farmer Series topics: water issues, introducing IMT, and the costs and benefits of the program. These posters target farmers, the general public and other target groups. They were designed to also work in schools and other children's centers. Posters are a good means of presenting the basic concepts of the FAQ. They will effectively catch the targeted audience's attention and provide constant reminders of the topic. Enough posters should be printed to make them available to all target groups in abundance.

### Field Staff Guide

This tool will serve as a step-by-step guide for MWRI engineers and field staff. It explains all about how to participate in IMT. Field Staff will need this sort of material to standardize the information they pass on to farmers. The booklet provides "lesson plans", offering suggestions on how to work with the farmers, how to encourage involvement in the BCWUAs, how to distribute IMT PAC materials to local schools, health clinics, mosques and community centers, and how to be a strong IMT resource or source of information.

### Fact Sheets

Three sample fact sheets have been produced to provide specialized information in the short-term. Up to ten different sheets could be made on this design for each of the groups being targeted: religious bodies, teachers, and water users. These can be used as talking points for speeches about IMT during weekly religious gatherings or classroom discussions. By providing the religious leaders and teachers with a guide for presenting IMT, we are actually helping them prepare their sermons and lessons.

### Activity Booklet

This booklet presents the ideas of the FAQ Farmer Series in a way that children can understand them, relate to them, and be encouraged by to speak with their parents about them. This booklet was the last priority of the Pilot Program, but it is an important tool for transmitting the idea of IMT to farmers from all directions.

Cairo Cartoon, the production company responsible for the popular animated television program BAKKAR, agreed to loan the images of this show's title character. BAKKAR is a character who commands immediate recognition among millions of Egyptians. He is a kind young artist considered to be wise and gentle. The presence of BAKKAR, combined with lots of fun puzzles and games that all relate to water issues, make for an attractive 12-page booklet. As one of the graphic designers who worked on the project claimed, children will not only be interested and entertained by this tool, "they will swim through it enthusiastically", soaking up all the fun activities designed just for them.

### Sample stickers

Stickers have been designed to accompany this booklet. While only two ideas have been presented in the pilot print program, one does not need to look far to find a plethora or other ideas for sticker images and messages.

### Stationery, Envelopes and Business Cards

As part of this initial effort, the IMT PAC created letterhead and other basic stationery items. It is recommended that the MWRI print stationery materials based on the prototypes to be used for internal and external communications. The IMT PAC team will need to draft many specialized letters to deliver the print program to the different audiences. They should also create an inquiry response system, which basically means the ability to produce a form cover letter that needs to be addressed, attached to the appropriate print tool, and put in the mail. Being prepared with an efficient delivery system saves a great deal of time when requests begin coming in for additional information about IMT. The stationery material provides a neat presentation of print materials, giving a professional look to all IMT correspondence.

As soon as the IMT PAC Team and IMT working group decides on its final logo, it would be wise to print 20,000 sheets of letterhead as well as second sheets, envelopes and business cards. The business cards could have all of the contact information needed, leaving a space for the field engineer to include his information. A calendar could be printed on the back of this card to give it constant utility.

NOTE: It has been extremely important that written and presentation material reflect the fact that the IMT is national program, the dignity and integrity of which are important assets. They thus project an image of a program that the public can trust.

The family of tools are all linked to each other by the graphic identity system and general look of the program. The posters that have been produced for the farmers are linked to those produced for the general public. All of the posters resemble the brochures, tri-folds and booklets. It is so important to create a look and brand for the program so that the whole delivery process will be more streamlined.

When the specialized material is delivered in a timely manner, there should be a general feel in the community that its “raining IMT”. Everywhere the water users turn, IMT material should be waiting. Children will go home with their activity books and reassure their parents that IMT is important for their future. Imams will have fact sheets to guide them in their Friday speeches. Field staff have a guide to help them set the standards, providing uniform and official information. The agricultural extension workers will know about the program through the introductory brochure and the FAQ. Everyone will be “in the know”, and everyone will regard IMT in a serious manner, thanks to the approach this family of brochures takes in informing the whole community.

### Creating Basic Information Packages for the Core Groups

Now that the basic package of print materials has been produced, audience-specific information modules can be assembled. The information packages can also be customized to meet specific requests. The basic documents may even be put on the web so they can be downloaded easily.

Streamlining the distribution and dissemination process is a secret to fluidity and efficiency. Some brochures will only need standard cover letters to make the materials

pertinent to specific targets. The cover letters do not need to be highly sophisticated. In most instances, a black and white photocopied cover letter would transfer the appropriate message needed to make a general document more specialized.

A packet for Field Staff can be created including the Field Staff Guide, Farmers' FAQ Brochures, Introductory Brochures and relevant Fact Sheets. This package can be placed in a pocket folder created specifically for the Field Staff.

A packet for the press can be created including the Introductory Brochure and the FAQ. If Fact Sheets are needed for timely information, they can also be included. Cover letters will personalize the material, and placing it all in a specialized "Press and Media" Folder will make it all seem very professional.

Packets can be created for the farmers with the Farmers' FAQ Series and any Fact Sheets needed to present timely issues. Once again, the materials are more likely to stay together and have a greater impact if they are presented in a customized folder.

The IMT PAC team should take advantage of the customized pocket folder idea to help organize the materials being distributed. It may seem like overkill but if the team wants the material to be respected and saved, it should present it in a respectable manner from the beginning. Pocket Folders will be a big hit with farmers and the Press.

### **28.3 Moving Forward: Other Media**

The designed print prototypes make up only the first step in our comprehensive approach to promoting IMT. The following are suggestions of how to build the IMT PAC around the pilot print program.

#### The Press and Broadcast Media

Radio and television are perhaps the most effective means of reaching the general public. It is highly recommended that video and audio programs be produced in the short-term. They will be extremely useful for expansion in the medium-term. The short-term activities in the pilot areas offer a good opportunity to create useful broadcast materials and test them in focus groups.

When creating the communications tools for press and broadcast purposes, the style, tone and content of the message should aim to communicate a different level of information than that targeted by the introductory brochure and other print material. As video reaches a much broader audience, its message must be geared to communicate concepts as opposed to details.

#### Introductory Video

The IMT PAC should design and produce a 12-minute educational video that introduces the engaged public and the general public to IMT, its functions, and its operational procedures. This introductory video can be shown at meetings, presentations, workshops and seminars. It can also serve as a centerpiece for talk shows and panel discussions broadcast throughout Egypt on commercial and public TV

networks. Half-hour or hour TV programs could use the video to anchor a talk show or panel discussion. It could also be used on a call-in show with panelists answering viewer's questions. It would be best if the video were hosted by a popular personality - someone who can attract attention to his/her presentation of the topics. The Public Awareness consultant is recommending that IMT PAC employ Hisham Abbess in this role.

The key to making an effective video capable of serving as a centerpiece for a variety of programs is to blend the educational and entertaining elements together in a lively way that holds the viewer's interest. The video must follow a clear logic, and each segment of the program should not only connect well to the preceding segment, it should creatively build on it.

A sample video script has been prepared and is attached in the final section of this document. In the sample script, the video begins with an opening that explains the water situation in Egypt. It is important for viewers to understand how IMT will help Egyptians deal with a growing water crisis. The video will explain a number of basic questions people might have about IMT. It will introduce the different costs and benefits of the program. Testimonials by farmers, ministry staff and the MWRI will bring the message home for many viewers. Common folk and engineers alike believe in the IMT program. So should everyone. It is a bandwagon approach.

It would be wise to make several hundred VHS copies to initiate a distribution effort. Copies should be sent to ministers and other key individuals. Of course, many more copies will have to be made to reach a wider audience. Professional format (BETACAM) copies will be made and distributed to TV stations in the region.

Length- 10 minutes

Audience- Engaged Public and General Public

Format- Broadcast Quality Video- with a 1" or Betacam SP Master

Language Versions – Arabic and Arabic with English subtitles

### TV Spots

The IMT PAC should only produce and disseminate TV spots after the print material has been tested and some research has been done in the field. TV spots cannot convey very much information; in fact, the best-made spots focus on one simple idea, and deliver it imaginatively. If the spots are clever and engaging, people will not mind seeing them more than once. It gives the IMT PAC a chance to repeat key ideas, and of course, repetition is important. The IMT PAC should produce several spots, each addressing a specific point, determined through carefully listening to the impact of the pilot print program. Hopefully, the spots will be broadcast frequently, free-of-charge, as public service announcements (psas).

The spots should focus on the following key points, among others:

- The importance of IMT in irrigation management.
- The MWRI provides information for farmers/anyone who wants to participate.

- Common questions or whatever misperceptions are most prevalent at that time.

It would be wise to build on the relationship that has been formed with Cairo Cartoons to secure the animated character BAKKAR as a spokesperson. Linking our program with an already existing success story like BAKKAR is a wise way to make the most of networking. Rumor has it that BAKKAR is as popular with adults in the countryside as with children. Without a doubt, this character has the power to make IMT concepts well known.

### Radio Messages

A radio program consisting of six one-minute prerecorded programs about IMT can also be produced and distributed widely as centerpieces for talk shows and other programs. The radio program should relate to the video program stylistically. For example, they could both use the same host. The radio broadcasts can reach a large segment of the Egyptian population. The scripts for these spots must be developed in a creative and educational way to maintain the interest of diverse target audiences. It would be helpful to engage the collaboration of the radio station programmers in the design and creation of these spots. This would make the programmers more likely to cooperate in airing the spots or including them as centerpieces in radio talk shows.

There should be synergy in terms of presentation and delivery between the radio program, the video program and the print program. The host of the radio shows or TV programs could invite the viewer to write to the MWRI for more information, or pick up an introductory brochure at a certain location. As a means of responding to viewer inquiries, the IMT PAC Team could send out the brochures developed in the print program.

Number: 6  
Length: 1 minute each  
Audience: General Public  
Format: Digital Audiocassettes  
Language Versions – Arabic

### Seminars, Workshops and Information Days

The most effective way to communicate highly specialized information about IMT and its functions to representatives of the press and media, farmers, religious leaders, MWRI staff and the engaged public is through educational seminars. Although this is a costly activity, it is a way to assure that the most important target groups of this campaign receive the adequate and high standard of specialized training needed to participate fully in or support IMT. These are scheduled to start in the short term, but because of their importance, they should be repeated regularly (biannually or annually) throughout the entire campaign, both medium and long-term.

MWRI Seminars  
Seminars for Religious Bodies  
Training sessions for the Field Staff  
Introductory Information Days for the Engaged Public

## Workshops for the Press and Media Representatives Trainings for the Ministry of Education teachers

The IMT/PAC should start conducting seminars in the short-term for all of the target groups. This will allow the groundwork to be put in place for the expansion of IMT in the medium term.

### Advertising

*IMT is a market, not a product.* As an important national program, maintaining its dignity, integrity and credibility is essential to its success. It cannot promote itself the way a commercial entity would its product. Therefore advertising should be used selectively and carefully. During the short-term, the IMT/PAC should develop three basic newspaper ads to promote specific milestones in the development IMT. The first ad will appear to announce the logo and the fact that IMT is being developed by the MWRI to meet a growing need for more efficient management of the irrigation system. Another ad will announce the availability of information about IMT. It will tell readers where and how to access the information. Another can be used to announce seminars about specific topics for engineers. These ads should appear in engineering publications. Depending on the budget and whether or not the IMT/PAC can secure preferential rates; the program may also place these ads in select newspapers in the country.

### The Internet

As soon as the logo is complete and as the initial set of communications tools have been written and produced, the IMT/PAC should establish a web site for IMT. It should apply for a domain name as soon as possible since domain names are distributed on a first-come, first-serve basis. To apply for a domain name it must first select a host server. Presumably the same host that serves the MWRI web site would be a good choice.

Although the web is not a primary dissemination medium since such a small percentage of the Egyptian population uses computers, the web is an important tool to facilitate the efficient dissemination of information about IMT. It will be useful for making information available to the various networks that will be employed in the IMT/PAC. It will streamline the process of distributing information to the press and broadcast media, government agencies, the engaged public and other professional organizations.

### “Road Shows”

As discussed earlier in the Strategy and Approach Section of this report, sending speakers to meetings of community groups and professional association meetings is one of the most effective means of promoting IMT. Nevertheless it is extremely costly in terms of manpower and travel expenses. Upon completing the review of this plan for IMT/PAC, the IMT working group will have to decide who is available to do this and how much time they can commit to this task. Given the costs involved, the venues MWRI staff chooses to send speakers to must be prioritized. For example, it would be more important to send speakers to MALR conference than to a local Rotary Club meeting. On the other hand, sending a speaker to a Rotary Club meeting when the

members have expressed interest in helping IMT identify potential donors has huge incentives. These are judgment calls and it would be best to make them as the process unfolds and in response to specific needs and opportunities.

#### Traveling theatre presentations

Creative interactive presentations could be produced and organized to go from school-to-school, capturing the youths' attention in an entertaining way and attracting them to IMT/PAC issues. At the same time, facilitators could present curriculum guidelines to teachers and school administrators and provide a brief training on how to incorporate more water related activities into everyday lesson plans. Maintaining a traveling group of facilitators would be pricey, but extremely effective in reaching out. The structure that such a group could put in place at the local level would provide long-term educational support with ramifications that extend into the next generation.

#### Children's Clubs

"Water Conservation" clubs should be considered as a possible mode for IMT/PAC dissemination in the long-term. Children can be motivated to form these clubs at community centers around the nation, in their scout troops or in public libraries. These clubs would be social in nature with clear objectives for keeping water conservation as a priority topic for youth. A web page could link these clubs around Egypt with children all over the world, gathering to communicate among themselves, ideas about water.

#### An IMT Newsletter

Newsletters are ideal ways to maintain an effective dialogue with many of the audiences, especially with the MWRI staff, other ministries and the engaged public.

### **28.4 Testing Messages to Maximize Positive Impact**

How well a given slogan or saying is received depends a lot on how a particular audience hears it. For example many Egyptians have negative beliefs about the word "privatization". The IMT working group and MWRI Communications Unit staff would do well to test the designed program on focus groups.

The MWRI Communications Unit should determine the final phrasing, look and presentation of the print materials for mass distribution. Conducting focus groups for each of the audiences is the best way to determine the effectiveness of the proposed tools. Five tag lines were created for the pilot program, all designed to link the material and the messages. Illustrated images were designed and photographs were taken specifically for this campaign. Once the final messages, slogans and sayings have been determined, they should be used in all the various media forms.

It must be noted that the print prototype material being presented with this report was presented to a group of farmers and Ministry staff at a one-day workshop held in Cairo. The idea was to pre-test the material in an attempt to assess its effectiveness and determine what modifications were needed. All of the participants in this workshop

were previously familiar with IMT and quite implicated in the program. Thus, they were not an ideal focus group for pre-testing. Nevertheless, their comments were well documented and taken into serious consideration in the development of the pilot print program (See Appendix G).

It is crucial that all communications about the MWRI begin and end with several basic ideas:

- The communication must emphasize and REPEAT the role of IMT in promoting economic development and a higher standard of living in Egypt.
- It must help audiences to focus on the new opportunities that are available through IMT. Farmers are taking responsibilities into their own hands, and irrigation management will become more efficient.
- It must keep audiences focused on the long-term view. Examples:  
*“IMT is the only hope for sustained water resources in Egypt.”*  
*“IMT is a vehicle for growing the Egyptian economy and raising standards of living of all Egyptians.”*  
*“Water conservation is the responsibility of all Egyptians.”*

These same points can be framed a little differently:

The “MWRI’s Commitments”:

- To create an efficient, effective structure to assist farmers.
  - To revitalize the Egyptian agricultural economy and upgrade living standards.
- To lead Egyptians into a better future.

One way to evaluate the content presented in different pieces is to make sure the information communicates three things targeted audiences need to know in order to participate in or support IMT:

- WHY they should participate in or support this initiative;
- HOW to participate in it or support it;
- What they may GAIN (or LOSE) from participation.

An original musical score by a popular Egyptian musician (or several) would do wonders to unite images for PSAs and provide an upbeat background mood for the video program. Egyptians love music and respond very naturally to it. It is a great vehicle for transporting ideas and one that should play a role in any attempt to reach local target groups.

## 28.5 IMT/PAC Short-Term Budget

### Option I – Full Collaboration with Private Sector Professionals September 2001 - December 2002

Items		<u>U.S.</u> <u>Dollars</u>	Egyptian Pounds
<b>Administrative:</b>			
<ul style="list-style-type: none"> <li>Four Staff for IMT/PAC Team-on salary (\$500/month) for 18 months</li> </ul>		\$36,000.00	138,600.00
<ul style="list-style-type: none"> <li>Temporary Artistic Support (commissioned work during 18 months) <ul style="list-style-type: none"> <li>Computer graphic designer (\$2,500.00)</li> <li><b>Visual arts specialist (\$2,500.00)</b></li> <li>Musician (\$2000.00)</li> </ul> </li> <li>Office Equipment (machines, program upgrades)</li> </ul>		\$10,000.00	38,500.00
		\$5,000.00	19,250.00
<b>Total Administrative</b>		<b>\$51,000.00</b>	<b>196,350.00</b>
<b>Printing Costs:</b>			
<b>Quan</b>	<b>ITEMS</b>		
	<ul style="list-style-type: none"> <li>Graphic Identity Program</li> </ul>	\$500.00	1,925.00
8,000	<ul style="list-style-type: none"> <li>Pocket Folders</li> </ul>	\$4000.00	15,400.00
5,000	<ul style="list-style-type: none"> <li>Report Covers</li> </ul>	\$500.00	1,925.00
	<ul style="list-style-type: none"> <li>Stationery materials</li> </ul>	\$1000.00	3,850.00
10,000	<ul style="list-style-type: none"> <li>Introductory Tri-fold</li> </ul>	\$2000.00	7,700.00
10,000	<ul style="list-style-type: none"> <li>FAQ for Engaged Public</li> </ul>	\$5000.00	19,250.00
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 1</li> </ul>	\$1250.00	4,812.50
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 2</li> </ul>	\$1250.00	4,812.50
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 3</li> </ul>	\$1250.00	4,812.50
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 4</li> </ul>	\$1250.00	4,812.50
2,000	<ul style="list-style-type: none"> <li>Field Staff Guide</li> </ul>	\$5000.00	19,250.00
60,000	<ul style="list-style-type: none"> <li>Fact sheets (30 x 2000 each)</li> </ul>	\$6000.00	23,100.00
20,000	<ul style="list-style-type: none"> <li>Posters (5 x 4000)</li> </ul>	\$10,000.00	38,500.00
100,000	<ul style="list-style-type: none"> <li>Stickers</li> </ul>	\$1000.00	3,850.00
10,000	<ul style="list-style-type: none"> <li>Activity Booklet</li> </ul>	\$5000.00	19,250.00
<b>Total</b>	<b>Printing Costs</b>	<b>\$45,000.00</b>	<b>173,250.00</b>
<b>Video Program:</b>			
One 10 minute video centerpiece complete & ready for broadcast or screening, six public awareness spots (30 seconds), Ten 5 minute radio spots			
<ul style="list-style-type: none"> <li>Production</li> </ul>		\$20,000.00	77,000.00
<ul style="list-style-type: none"> <li>Post-production</li> </ul>		\$20,000.00	77,000.00
<ul style="list-style-type: none"> <li>Radio Spots</li> </ul>		\$6,000.00	23,100.00
<ul style="list-style-type: none"> <li>Distribution</li> </ul>		\$2,500.00	9,625.00
<b>Total</b>		<b>\$48,500.00</b>	<b>186,725.00</b>
<b>Grand Total</b>		<b>\$144,500.00</b>	<b>556,325.00</b>

MWRI Communications contributes four staff part-time for 18 months  
Costs of Seminars, Workshops and Information Days not included.

**IMT/PAC Short-Term Budget**  
**Option II – Partial Collaboration w/ Private Sector Professionals**  
**September 2001 - December 2002**

Items		<u><b>U.S. Dollars</b></u>	<b>Egyptian Pounds</b>
<b><u>Administrative:</u></b>			
• Two Staff for IMT/PAC Team-on salary (\$500/month) for 18 months		\$18,000.00	69,300.00
• Temporary Artistic Support (commissioned work during 18 months)		\$8,000.00	30,800.00
• Computer graphic designer (\$3,000.00)			
• <b>Visual arts specialist (\$3,000.00)</b>			
• Musician (\$2000.00)			
• Office Equipment (machines, program upgrades)		\$5,000.00	19,250.00
<b>Total Administrative</b>		<b>\$31,000.00</b>	<b>119,350.00</b>
<b><u>Printing Costs:</u></b>			
<b>Quan</b>	<b>ITEMS</b>		
	• Graphic Identity Program	\$500.00	1,925.00
8,000	• Pocket Folders	\$4000.00	15,400.00
5,000	• Report Covers	\$500.00	1,925.00
	• Stationery materials	\$1000.00	3,850.00
10,000	• Introductory Tri-fold	\$2000.00	7,700.00
10,000	• FAQ for Engaged Public	\$5000.00	19,250.00
5,000	• FAQ Farmers Series # 1	\$1250.00	4,812.50
5,000	• FAQ Farmers Series # 2	\$1250.00	4,812.50
5,000	• FAQ Farmers Series # 3	\$1250.00	4,812.50
5,000	• FAQ Farmers Series # 4	\$1250.00	4,812.50
2,000	• Field Staff Guide	\$5000.00	19,250.00
60,000	• Fact sheets (30 x 2000 each)	\$6000.00	23,100.00
20,000	• Posters (5 x 4000)	\$10,000.00	38,500.00
100,000	• Stickers	\$1000.00	3,850.00
10,000	• Activity Booklet	\$5000.00	19,250.00
<b>Total</b>	<b>• Print Prototypes</b>	<b>\$45,000.00</b>	<b>173,250.00</b>
<b><u>Video/Audio Program:</u></b>			
One 10 minute video centerpiece complete & ready for broadcast or screening, six public awareness spots (30 seconds), Ten 5 minute radio spots			
• Production			
• Post-production		\$15,000.00	57,750.00
• Radio Spots		\$15,000.00	57,750.00
• Distribution		\$5,000.00	19,250.00
<b>Total</b>		<b>\$2,500.00</b>	<b>9,625.00</b>
		<b>\$37,500.00</b>	<b>144,375.00</b>
<b>Grand Total</b>		<b>\$113,500.00</b>	<b>436,975.00</b>

MWRI Communications contributes four staff part-time for 18 months  
Costs of Seminars, Workshops and Information Days not included.

**IMT/PAC Short-Term Budget**  
**Option III – MWRI Communications Unit Solo**  
**September 2001 - December 2002**

Items		<u><b>U.S.</b></u> <u><b>Dollars</b></u>	<b>Egyptian Pounds</b>
<b><u>Administrative:</u></b>			
<ul style="list-style-type: none"> <li>Temporary Artistic Support (commissioned work during 18 months) <ul style="list-style-type: none"> <li>Computer graphic designer (\$2,500.00)</li> <li><b>Visual arts specialist (\$2,500.00)</b></li> <li>Musician (\$2000.00)</li> </ul> </li> <li>Office Equipment (machines, program upgrades)</li> </ul>		\$7,000.00	26,950.00
		\$5,000.00	19,250.00
<b>Total Administrative</b>		<b>\$12,000.00</b>	<b>46,200.00</b>
<b><u>Printing Costs:</u></b>			
<b>Quan</b>	<b>ITEMS</b>		
	<ul style="list-style-type: none"> <li>Graphic Identity Program</li> </ul>	\$500.00	1,925.00
8,000	<ul style="list-style-type: none"> <li>Pocket Folders</li> </ul>	\$4000.00	15,400.00
5,000	<ul style="list-style-type: none"> <li>Report Covers</li> </ul>	\$500.00	1,925.00
	<ul style="list-style-type: none"> <li>Stationery materials</li> </ul>	\$1000.00	3,850.00
10,000	<ul style="list-style-type: none"> <li>Introductory Tri-fold</li> </ul>	\$2000.00	7,700.00
10,000	<ul style="list-style-type: none"> <li>FAQ for Engaged Public</li> </ul>	\$5000.00	19,250.00
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 1</li> </ul>	\$1250.00	4,812.50
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 2</li> </ul>	\$1250.00	4,812.50
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 3</li> </ul>	\$1250.00	4,812.50
5,000	<ul style="list-style-type: none"> <li>FAQ Farmers Series # 4</li> </ul>	\$1250.00	4,812.50
2,000	<ul style="list-style-type: none"> <li>Field Staff Guide</li> </ul>	\$5000.00	19,250.00
60,000	<ul style="list-style-type: none"> <li>Fact sheets (30 x 2000 each)</li> </ul>	\$6000.00	23,100.00
20,000	<ul style="list-style-type: none"> <li>Posters (5 x 4000)</li> </ul>	\$10,000.00	38,500.00
100,000	<ul style="list-style-type: none"> <li>Stickers</li> </ul>	\$1000.00	3,850.00
10,000	<ul style="list-style-type: none"> <li>Activity Booklet</li> </ul>	\$5000.00	19,250.00
<b>Total</b>	<b>• Print Prototypes</b>	<b>\$45,000.00</b>	<b>173,250.00</b>
<b><u>Video Program:</u></b>			
One 10 minute video centerpiece complete & ready for broadcast or screening, six public awareness spots (30 seconds), Ten 5 minute radio spots			
<ul style="list-style-type: none"> <li>Production</li> </ul>			
<ul style="list-style-type: none"> <li>Post-production</li> </ul>		\$2,500.00	9,625.00
<ul style="list-style-type: none"> <li>Radio Spots</li> </ul>		\$2,500.00	9,625.00
<ul style="list-style-type: none"> <li>Distribution</li> </ul>		\$500.00	1925.00
			9,625.00
<ul style="list-style-type: none"> <li><b>Total</b></li> </ul>		\$2,500.00	
		<b>\$8,000.00</b>	<b>30,800.00</b>
<b>Grand Total</b>		<b>\$65,000.00</b>	250,250.00

MWRI Communications contributes four staff part-time for 18 months  
Costs of Seminars, Workshops and Information Days not included.

## 29. Phase III — Implementation and Dissemination

### 29.1 Timetable for Production and Dissemination of the Pilot Program

The following chart identifies the primary audience for each of the tools and proposes a timeline for both production and dissemination.

Proposed Production and Dissemination Chart for Pilot Program

<b>Product</b>	<b>Primary Audience</b>	<b>Sept. 2001</b>	<b>Rest of Short Term</b>	<b>Jan. 2003 Medium Term Begins</b>
<b>Logo Design Graphic Identity Program</b>	All audiences	Begin Using	Use and verify correct use by all	Use and verify correct use by all
<b>Stationery materials</b>	All audiences	Print	Distribution	Expand distribution
<b>Introductory Tri-fold</b>	All audiences	Print	Distribution	Update and reprint if necessary; Expand distribution
<b>FAQ Booklet</b>	Press / Media MWRI Religious bodies Engaged public	Print; Initial distribution	Expand distribution	Update and reprint if necessary; Expand distribution
<b>FAQ Farmers Series #1,2,3,4</b>	Farmers	Print; Initial distribution	Expand distribution	Update and reprint if necessary; Expand distribution
<b>Posters #1,2,3,4,5</b>	All audiences	Print; Initial distribution	Expand distribution	Update and reprint if necessary; Expand distribution
<b>Field Staff Guide</b>	MWRI Field Staff	Print; Initial distribution	Expand distribution	Update and reprint if necessary; Expand distribution
<b>Fact Sheets</b>	Farmers Teachers Religious leaders	Write; Design; Print; Initial distribution	Write; Design Print; Expand distribution	Update and reprint if necessary; Expand distribution
<b>Activity Booklets Stickers</b>	Farmers via children	Print	Initial distribution	Update and reprint if necessary; Expand distribution

### Items and Activities Suggested for Continued Expansion in the Short-Term

<b>Product</b>	<b>Primary Audience</b>	<b>Rest of Short Term</b>	<b>Jan. 03 Medium Term Begins</b>
<b>Introductory Video</b>	All audiences	Shoot and edit; Distribute	Distribute to TV networks; Distribute to professional orgs.
<b>Television PSAS</b>	All audiences	Shoot; Edit; Broadcast	Broadcast in all areas
<b>Radio Messages</b>	All audiences	Begin production; Finalize distribute to radio stations in the region	Distribute to radio stations in the region
<b>Seminars, Workshops Information Days</b>	Engaged public Press / Media Rel. bodies	Plan; Set program; Invite participants	Plan; Set program; Invite participants
<b>Advertising</b>	All audiences	Create and produce	Distribute
<b>The Internet</b>	Engaged public Press / Media	Create and Produce	Maintain
<b>“Road Shows”</b>	Engaged public Press / Media Rel. bodies	Organize and implement	Implement
<b>Traveling theatre presentations</b>	Water users via children	Create; Produce; Realize	Create; Produce; Realize
<b>Children's Clubs</b>	Water users via children	Organize and Establish	Maintain and improve
<b>IMT Newsletter</b>	All audiences	Create; Produce; Distribute	Create; Produce; Distribute

## Production and Dissemination in Years One and Two of IMT Operations

The following chart outlines some short-term and medium-term communications initiatives.

<b>Product</b>	<b>Audience</b>	<b>Sept. 2001 - Dec. 2002</b>	<b>Jan. 2003 - Dec 2007</b>
<b>FAQ for Engaged Public</b>	Engaged public	Print; Disseminate	Update if necessary; Reprint; Expand dissemination
<b>FAQ Farmers Series #1, 2, 3, 4</b>	Farmers	Print; Disseminate	Update if necessary; Reprint; Expand dissemination
<b>Posters</b>	All audiences	Print; Disseminate	Update if necessary; Reprint; Expand dissemination
<b>Field Staff Guide</b>	MWRI Field Staff	Print; Disseminate	Update if necessary; Reprint; Expand dissemination
<b>Fact Sheets</b>	MWRI staff Farmers Press and Media	Print; Disseminate	Update if necessary; Reprint; Expand dissemination
<b>Activity Booklets</b>	Farmers via children	Print; Disseminate	Continue publishing; Update if necessary; Reprint; Expand dissemination
<b>Video Program</b>	All audiences	Produce; Begin to show at meetings; Distribute to TV stations	Continue to show at meetings of professional associations
<b>Radio Spots</b>	All audiences	Produce	Update and refine in response to feedback from audience
<b>Seminars, Workshops Information Days</b>	All audiences	Organize; Invite; Conduct on regular basis (annually, semi annually)	Organize; Invite; Conduct on regular basis (annually, semi annually)

## 29.2 Basis for Evaluating the Success of the Pilot Program

There are a variety of ways to measure the success of the Pilot Program. The team can use a variety of Program Goals as a form of measurement, or use measurements that come directly from the elements of the IMT/PAC itself. For example, the team can measure the response from inquiry cards that are sent out in conjunction with a

communications initiative such as a radio or TV program. Readership is hard to measure since the newspapers have more or less consistent readership. But there are companies that monitor broadcast for TV and radio. These companies can provide essential statistics about the numbers of viewers.

Surveys are a good way to evaluate program effectiveness -- they are a reliable way to understand an audience and modify communications accordingly. Surveys can also reveal audience misperceptions, information deficits, attitudinal changes, and much other valuable information

The informational needs of the IMT target audiences will change as they become more familiar with IMT. Paying close attention to the changing needs of the participants and the public through formal means such as surveys and press conferences, and informal means such as meetings with organizations and others, is crucial to growth and development. Audience feedback will help the IMT/PAC Team reassess its messages, choice of media and communications tool. This information should motivate changes in the way the MWRI communicates.

### 29.3 IMT/PAC Medium-Term Budget — January 2003 - December 2007

Items		<u>U.S.</u> <u>Dollars</u>	Egyptian Pounds
<b><u>Administrative:</u></b>			
• Four Staff for IMT/PAC Team-on salary (\$500/month) for 18 months		\$360,000.00	1,386,000.00
• Temporary Artistic Support		\$50,000.00	192,500.00
• Computer graphic designer \$5,000.00 (hourly services during 18 months)			
Visual arts specialist \$3000.00 (commission work)			
• Musician (\$2000.00) (commission work)		\$10,000.00	38,500.00
• Office Equipment (machines, program upgrades)			
• <b>Total Administrative</b>		<b>\$420,000.00</b>	<b>1,617,000.00</b>
<b><u>Printing Costs:</u></b>			
<b>Quan</b>	<b>ITEMS</b>		
	• Graphic Identity Program	\$500.00	1,925.00
8,000	• Pocket Folders	\$4000.00	15,400.00
5,000	• Report Covers	\$500.00	1,925.00
	• Stationery materials	\$1000.00	3,850.00
10,000	• Introductory Tri-fold	\$2000.00	7,700.00
10,000	• FAQ for Engaged Public	\$5000.00	19,250.00
5,000	• FAQ Farmers Series # 1	\$1250.00	4,812.50
5,000	• FAQ Farmers Series # 2	\$1250.00	4,812.50
5,000	• FAQ Farmers Series # 3	\$1250.00	4,812.50
5,000	• FAQ Farmers Series # 4	\$1250.00	4,812.50
2,000	• Field Staff Guide	\$5000.00	19,250.00
60,000	• Fact sheets (30 x 2000 each)	\$6000.00	23,100.00
20,000	• Posters (5 x 4000)	\$10,000.00	38,500.00
100,000	• Stickers	\$1000.00	3,850.00
10,000	• Activity Booklet	\$5000.00	19,250.00
<b>Total</b>	• <b>Print Prototypes</b>	<b>\$45,000.00 x 10 (ten new areas)</b> <b>Total \$450,000.00</b>	<b>1,732,500.00</b>
<b><u>Video Program:</u></b>			
10 minutes video centerpiece complete & ready for broadcast or screening six public awareness spots (30 seconds each)			
New 5-minutes radio spots			
• Production		\$75,000.00	288,750.00
• Post-production		\$75,000.00	288,750.00
• Radio Spots		\$10,000.00	38,500.00
• Distribution		\$5,000.00	19,250.00
• <b>Total</b>		<b>\$165,000.00</b>	<b>635,250.00</b>
<b>Grand Total</b>		<b>\$1,035,000.00</b>	<b>3,984,750.00</b>

MWRI Communications contributes four staff part-time for five years  
Costs of Seminars, Workshops and Information Days not included.



## **Persons Met During Phase I**

### **Cairo**

Eng. Gamil Mahmoud, MWRI Steering Committee Chairman  
Mr. Andy Tczap, EPIQ  
Dr. Robert Cardinalli, EPIQ  
Eng. Nasser Ezzat, WPAU  
Eng. Sarawat Fahmy, WPAU  
Eng. Abdelrahman Shalaby, MWRI  
Eng. Essam Barakat, IAS  
Dr. Hesham Moustafa, MWRI Communication Unit  
Mr. Ahmed Abdel Aziz, MWRI Communication Unit  
Dr. Tariq Abdullah, Horizontal Expansion Sector, MWRI  
Eng. Ali Khaleel, MWRI Mechanical & Electrical Department  
Eng. Moamen El Sharkawy, WPAU  
Dr. Mahmoud Moustafa, EPADP/NWRG  
Eng. Amira El Diasty, WPAU  
Mr. Steve Joyce, Public Awareness Specialist, APRP/RDI

### **Damanhour, Beheira**

Eng. Salah Abder el Gawaar, Chairman of the BCWUA  
Eng. Eid Ali Eid, Secretary BCWUA  
Eng. Helmi Aissa, Treasurer  
Eng. Magdy El Halabi, IAS  
Eng. Mahmoud Moustafa, Chairman/Director of Central Office  
Eng. Salah El Akani, Director of Irrigation Department  
Eng. Fethi el Gawailli, Irrigation Inspector  
Ragab Najar, Chairman Balaqtar BCWUA

### **Zagazig, Sharqaiya**

Eng. Mohamed Amin, Chairman of BCWUA  
Eng. Mohamed Said, Secretary of BCWUA  
Eng. Mohamed Waraki, Undersecretary Irrigation Department  
Eng. Abdel Fatah, General Director, Salhaiya  
Eng. Rida Mahdy, Inspector, Abu Hammad  
Eng. Farouk Abdel Hameed, Inspector  
Eng. Khalid Wassif, IAS  
Eng. Mohamed Ayman, District Engineer

## Working Schedule

The following table indicates the schedule that was maintained while fulfilling the responsibilities of Phase I of the assignment. In anticipation of Phase II consultancy programming needs, the assignment necessitated three additional days, so as to be able to identify the appropriate graphic designers prior to the completion of Phase I, well in advance of the start-up of Phase II.

<b><u>Task</u></b>	<b>Start Date</b>	<b>End Date</b>
<b><u>Research</u></b>		
Read all related materials about IMT	05/06/01	05/09/01
Interview key players in IMT program	05/06/01	05/17/01
Review MWRI communications materials	05/09/01	05/17/01
Field Trip #1	05/19/01	05/19/01
Field Trip #2	05/20/01	05/20/01
<b>Strategy Development</b>		
Brainstorming with working groups session #1	05/13/01	05/13/01
Brainstorming with working groups session #2	05/15/01	05/15/01
Brainstorming with working groups session #3	05/21/01	05/21/01
Interview key players in IMT program	05/09/01	05/23/01
Shuttle brainstorming - one on one with working group		
Drafting of PAC Plan of Action	05/09/01	06/07/01
Review of PAC Plan of Action by IMT Core Group	06/11/01	06/11/01
Assignment of prototype tasks		
Modification of PAC Plan of Action	06/11/01	06/12/01
Submit Final Draft of PAC Plan of Action	06/12/01	06/12/01
<b>Prototype Development</b>		
Basic outline for video program	Phase II	Phase II
Identify professional graphic designers	06/06/01	06/11/01
<b><u>Final Report</u></b>		
Prepare Final Report Phase I – IMT PAC With exception of Graphic Design Research	06/05/01	06/05/01
Submit Final Report (with annexed suggestions about possible graphic designers)	06/12/01	06/12/01

## Perceptions and Misconceptions

Target Group	Perceptions	Misconceptions
1. Farmers	<ul style="list-style-type: none"> <li>◆ Water management is currently inefficient and bureaucratic.</li> <li>◆ Good farming practices depend on the availability of water and the efficient management of water resources.</li> <li>◆ A better/more reliable system of management would make their life easier and increase profits.</li> <li>◆ Cleaning out the water canals is a tedious and dirty process.</li> <li>◆ Water distribution is often unfair .</li> <li>◆ IMT is a new, unclear, foreign concept.</li> <li>◆ There are risks involved in taking on responsibilities.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Ministry is going to sell water (water pricing).</li> <li>◆ MWRI is giving up its support for the farmers.</li> <li>◆ MWRI wants to get rid of irrigation equipment that no longer functions.</li> <li>◆ Engineers will no longer help solve problems.</li> <li>◆ Financial contribution will not merit the improvements in service.</li> <li>◆ Ministry could do the job better -- has ability to maintain efficient system.</li> <li>◆ There is no real water problem (the Nile is still full).</li> <li>◆ Water supply depends on the good will of the government.</li> <li>◆ MWRI staff and officials make money off of irrigation programs (foreign donations, etc.) without really serving their needs.</li> <li>◆ MWRI is detached from the farming reality in the field.</li> <li>◆ MWRI is not capable of being fluid with information and steady with the support, not enough to provide the basis for IMT success.</li> </ul>
Target Group	Perceptions	Misconceptions

<b>2. Press &amp; Media</b>	<ul style="list-style-type: none"> <li>◆ Lacking a strong perception of IMT; yet to be reported</li> <li>◆ Egyptian system of management of water is inefficient and insufficient.</li> <li>◆ A new and better way of managing water is long overdue.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ Better systems of water management exist in some foreign countries.</li> <li>◆ There is water crisis facing Egypt. Water stories are popular and a priority; the public pays attention to this topic.</li> <li>◆ Their role is important in rallying public support for IMT.</li> </ul>	<ul style="list-style-type: none"> <li>◆ The press thinks that the MWRI wants to relinquish all responsibility.</li> <li>◆ Little trust in government programs.</li> <li>◆ IMT is not delegation of authority but throwing away of responsibility.</li> <li>◆ Israel and western allies of Israel are behind such innovative efforts with ulterior motives.</li> <li>◆ IMT is a gateway to water pricing.</li> <li>◆ MWRI is not capable of being transparent or fluid with information.</li> </ul>
3. Religious Bodies	<ul style="list-style-type: none"> <li>◆ The MWRI's concern for a future water crisis is real, their efforts should be given consideration.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ IMT could be a benefit for the whole Egyptian society.</li> <li>◆ Conservation in quantity and quality is a message of Islam and Christianity.</li> <li>◆ Misuse of resources is against Islam and Christianity ("Pollution of the Nile will send you to Hell").</li> </ul>	<ul style="list-style-type: none"> <li>◆ Do not want to be tools for the government.</li> <li>◆ MWRI is launching a political activity.</li> <li>◆ Ulterior motives (they are being used for only part of a greater program).</li> <li>◆ They will not get credit for their participation.</li> <li>◆ Fear of being deceived.</li> <li>◆ MWRI is not capable of being transparent or fluid with information.</li> </ul>
<b>Target Group</b>	<b>Perceptions</b>	<b>Misconceptions</b>

<b>4. MWRI</b> <b>A. Officials and Middle Management</b>            <i>B. Field Staff and Engineers</i>	<ul style="list-style-type: none"> <li>◆ The water crisis is real.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ They have heard about IMT policy.</li> <li>◆ Saving water can increase flexibility for other projects.</li> <li>◆ IMT will improve water quantity and quality.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Ministry is going to sell water to reduce government investment.</li> <li>◆ Confusion of IMT with other water programs/policies (water boards, BCWUAs).</li> <li>◆ IMT is a consulting agency.</li> </ul>
	<ul style="list-style-type: none"> <li>◆ The water crisis is real.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ Water is being conserved for diversification other projects.</li> <li>◆ IMT will improve water quantity and quality.</li> <li>◆ Engineers understand best how IMT is beneficial to the pilot areas.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Not clear about the differences between IMT and other water programs.</li> <li>◆ IMT could lead to them losing their jobs.</li> <li>◆ MWRI will not provide enough support for successful implementation of IMT.</li> </ul>

Target Group	Perceptions	Misconceptions
5. Engaged Public  MALR	<ul style="list-style-type: none"> <li>◆ The water problem is real.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ Trust in civil engineers at the MWRI, they know what they are doing by implementing IMT.</li> <li>◆ Better use of water leads to better agricultural productivity.</li> <li>◆ IMT could help diversify agricultural activity (leading to possibilities in agricultural arena: marketing, farm inputs).</li> </ul>	<ul style="list-style-type: none"> <li>◆ Grouping farmers is not the right formula for sustainability.</li> <li>◆ Farm-educated agricultural extension agents are linked to traditional approaches.</li> <li>◆ Farm-educated agricultural extension agents don't believe in the water crisis.</li> <li>◆ Farmers are incapable of collaborating. No respect for teamwork, the only way to work with farmers is on a one to one basis.</li> </ul>
<i>Ministries of Education, Sport, Youth, Culture</i>	<ul style="list-style-type: none"> <li>◆ The water problem is real.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ Trust in civil engineers at the MWRI, they know what they are doing by implementing IMT.</li> <li>◆ Better use of water leads to better standard of living.</li> </ul>	<ul style="list-style-type: none"> <li>◆ IMT is another "test" by the MWRI to solve water problems, it will soon be replaced by a new "test".</li> <li>◆ The MWRI is not really committed to IMT, it is just a way for it to attract big US donations.</li> <li>◆ IMT is a monstrous American project, to be supported only by USAID.</li> <li>◆ MWRI is not capable of being transparent or fluid with information .</li> </ul>

Target Group	Perceptions	Misconceptions
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<i>Ministries of Environment, Transportation, Interior</i>	<ul style="list-style-type: none"> <li>◆ The water problem is real.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ Trust in civil engineers at the MWRI, they know what they are doing by implementing IMT.</li> <li>◆ Better use of water leads to better standard of living.</li> </ul>	<ul style="list-style-type: none"> <li>◆ IMT is another "test" by the MWRI to solve water problems, it will soon be replaced by a new "test".</li> <li>◆ The MWRI is not really committed to IMT, it is just a way for it to attract big US donations.</li> <li>◆ IMT is a monstrous American project, to be supported only by USAID.</li> </ul>
<b>Non-Governmental Organizations</b>	<ul style="list-style-type: none"> <li>◆ IMT is a new idea, NGOs still don't know a lot about it.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ NGOs are essential for community development in rural areas.</li> <li>◆ Privatization and decentralization is good.</li> <li>◆ IMT could be a form of privatization.</li> <li>◆ Programs like IMT could strengthen civil society.</li> <li>◆ Innovative programs allow them new partners and new ways to fund raise, linking existing programs into other more attractive ones leads to greater international donor interest.</li> </ul>	<ul style="list-style-type: none"> <li>◆ MWRI is a taker and not an honest/transparent partner.</li> <li>◆ Little trust in MWRI.</li> <li>◆ IMT is a manipulation of the MWRI to relinquish responsibility in areas where it has failed.</li> <li>◆ IMT is not delegation of authority but throwing away of responsibility.</li> <li>◆ Ministry is going to sell water.</li> <li>◆ IMT will not survive and should not be taken seriously.</li> <li>◆ MWRI is not capable of being transparent or fluid with information.</li> </ul>
<b>Target Group</b>	<b>Perceptions</b>	<b>Misconceptions</b>

<b>Politicians</b>	<ul style="list-style-type: none"> <li>◆ MWRI's concern for a future water crisis is real.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ IMT is one of several MWRI water programs; it could be a benefit for the whole society.</li> <li>◆ IMT is a innovative program that could be vehicle for political activities.</li> <li>◆ All of Egypt is interested in water issues.</li> <li>◆ If the public likes IMT, political mileage can be gained by linking oneself to the program.</li> </ul>	<ul style="list-style-type: none"> <li>◆ The only thing that is important is what the public deems important. The water crisis is important only if the public thinks that it is.</li> <li>◆ Commitment to anything innovative is risky.</li> <li>◆ IMT is risky program that must overcome impossible obstacles to succeed.</li> <li>◆ Linking oneself to IMT could lead to criticism/political disaster.</li> <li>◆ IMT will lead to the creation of new political bodies that will, in turn, lead to less personal political influence.</li> <li>◆ Politics is for personal gains, not social gains.</li> <li>◆ Side-stepping controversial issues is a way to maintain political power.</li> </ul>
<i>Donor Organizations</i>	<ul style="list-style-type: none"> <li>◆ IMT could be a benefit for Egypt.</li> <li>◆ The future of Egypt depends on efficient management of water resources.</li> <li>◆ IMT has noteworthy success in other countries.</li> <li>◆ IMT is an innovative program that could merit support.</li> <li>◆ IMT could bring about new programs to support.</li> <li>◆ MWRI is committed to this program.</li> </ul>	<ul style="list-style-type: none"> <li>◆ IMT is another "test" by MWRI to solve water problems; there will soon be a new "test".</li> <li>◆ The MWRI is not really committed to IMT, it is just a way for it to attract big US donations.</li> <li>◆ IMT is a monstrous American project, to be supported only by USAID.</li> <li>◆ MWRI is not capable of being transparent or fluid with information.</li> </ul>
<b>Target Group</b>	<b>Perceptions</b>	<b>Misconceptions</b>

<p><b>6. General Public</b></p>	<ul style="list-style-type: none"> <li>◆ They don't know a lot about IMT because it has yet to be reported.</li> <li>◆ Water management is a burden to the Government.</li> <li>◆ System of management of water is inefficient and insufficient.</li> <li>◆ Government is giving up control and responsibility.</li> <li>◆ IMT is water pricing in disguise.</li> <li>◆ Water in Egypt is polluted.</li> </ul>	<ul style="list-style-type: none"> <li>◆ There is no real water problem (the Nile is still full).</li> <li>◆ Water supply depends on the good will of the government.</li> <li>◆ Farmers are incapable of managing the irrigation system.</li> <li>◆ Government is trying to get rid of old bulky systems that will never be efficient.</li> <li>◆ Government is spinning its wheels with new programs imported from abroad.</li> <li>◆ MWRI officials and staff make a profit at farmers' expense.</li> <li>◆ USAID funded programs have hidden Israeli agendas.</li> <li>◆ IMT is a foreign program that does not serve Egypt's situation.</li> <li>◆ MWRI is not capable of being transparent or fluid with information.</li> </ul>
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## Incentives and Disincentives

Target	Incentives	Disincentives
<b>1. Farmers</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding that benefits of IMT are far greater than costs</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Individual return is higher, greater agricultural profits, especially for tail end</li> <li>▪ Farmers</li> <li>▪ Farmers maintain better control over output</li> <li>▪ Less bureaucracy</li> <li>▪ More efficient and easier management, making water available when needed</li> <li>▪ Representational governance of local area</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ Lack of self-confidence to take responsibility (fear)</li> <li>▪ Limitations of IMT communications staff to manage high demand of</li> <li>▪ Information dissemination</li> <li>▪ Not convinced that they need to take on responsibility</li> <li>▪ Break with tradition/status quo</li> <li>▪ Farmers are spoiled and dependent on government aid</li> <li>▪ WUAs might not represent the needs of everyone equally (tail end issues not a priority)</li> <li>▪ Not used to the practice of democracy, elected board not best for job</li> <li>▪ Broken equipment (physical facilities) in need of investment for repair</li> <li>▪ Initial and ongoing investment seem greater than benefits</li> <li>▪ Benefits are not obvious, especially for main or branch canal users</li> </ul>

Target	Incentives	Disincentives
<b>2. Press &amp; Media</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits and newsworthy importance.</li> <li>▪ Cash or in-kind rewards, presented on 22nd March: World Water Day</li> <li>▪ Certificates of excellence in promoting water issues</li> <li>▪ Accessibility and transparency of information, MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Well-prepared press packages</li> <li>▪ Travel tours to countries where IMT has a good track record</li> <li>▪ IMT and other water issues are of great concern to Egyptians</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ Negative human behavior: not welcoming press openly, rough/impolite treatment, hiding information, lack of respect, kindness, courtesy</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> <li>▪ Cynicism, trying to prove intelligence by criticizing perceived weaknesses of IMT</li> <li>▪</li> </ul>
<b>3. Religious Bodies</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Desire for religious bodies to play a role in social development</li> <li>▪ They can be seen as pioneers in innovative social development</li> <li>▪ When successful, the reward is HEAVEN</li> <li>▪ Moral satisfaction</li> <li>▪ New topic to speak about on Fridays/Sundays</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT and its benefits for Egypt's water resources</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ No desire to get involved with government activities</li> </ul>
<b>4. MWRI Senior Officials</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ MWRI open door policy,</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT</li> <li>▪ Lack of transparency of IMT</li> </ul>

Target	Incentives	Disincentives
Officials and Middle Management	<p>transparency of IMT structure...nothing secret</p> <ul style="list-style-type: none"> <li>▪ Better opportunities for general planning and water allocation</li> <li>▪ Decreased financial and technical burden in O&amp;M</li> <li>▪ Better use of water resources</li> <li>▪ Flexibility in applying water laws/regulations</li> <li>▪ Improved relationship between MWRI and other water related agencies</li> <li>▪ Reduced number of complaints and conflicts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> <li>▪ Lack of self-confidence to fight for the IMT policy</li> <li>▪ Break with tradition/status quo</li> <li>▪ Unsure of difference between IMT and other water programs</li> <li>▪ Not convinced by IMT policy</li> </ul>
Engineers and Field Staff	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ Understanding of greater flexibility IMT offers in applying water policies</li> <li>▪ Reduced technical burden</li> <li>▪ Reduced number of complaints and conflicts</li> <li>▪ Enhanced career goals (pioneers)</li> <li>▪ Status of a consultant instead of a "controller"</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> <li>▪ Lack of self-confidence</li> <li>▪ Break with tradition/status quo</li> <li>▪ More work for same pay</li> <li>▪ Fear of losing job</li> <li>▪ Cynicism, trying to prove intelligence by criticizing perceived weaknesses of IMT</li> </ul>

Target	Incentives	Disincentives
<p><b>5. Engaged Public</b></p> <p><i>MALR</i></p>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ All future development initiatives in Egypt is linked to dependable water resources and efficient management of them</li> <li>▪ IMT encourages new business opportunities and possible new partners</li> <li>▪ IMT is another step forward for civil society, furthering the understanding of the work of NGOs and their role in developing Egypt's economy/society</li> <li>▪ IMT supports community initiatives</li> <li>▪ IMT aims to increase the role of the private sector in development initiatives</li> </ul>	

Target	Incentives	Disincentives
<p><b>Non-Governmental Organizations</b></p>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Strengthened coordination and cooperation between MALR and MWRI</li> <li>▪ Respect of MWRI and civil engineering decisions</li> <li>▪ Support for more agricultural activities at the on-farm level</li> <li>▪ (marketing of products, purchasing of other farm related equipment, farm inputs)</li> <li>▪ Improved agricultural productivity</li> <li>▪ Greater farmer responsibility in agricultural practices</li> <li>▪ Susceptible to farmer criticism (by comparison to MWRI staff)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> <li>▪ Break with tradition/status quo</li> <li>▪ Farm-educated agricultural extension agents are more traditional in approach</li> <li>▪ Fear for the loss of farmer's dependence leading to a loss of job</li> <li>▪ Less important reputation in field (Civil engineer vs. Agricultural engineer)</li> <li>▪ Cynicism, trying to prove intelligence by criticizing perceived weaknesses of IMT</li> </ul>

Target	Incentives	Disincentives
<b>Politicians</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Something new to talk about</li> <li>▪ Link oneself to a successful program (success attracts success)</li> <li>▪ Support of applying laws</li> <li>▪ Selfish motives</li> <li>▪ Tit-for-tat with influential people in the MWRI (you scratch my back and I'll scratch yours)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT and its benefits for Egypt's water resources</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> <li>▪ Selfish motives (not looking out for the benefit of constituents)</li> <li>▪ Fears of alienation</li> <li>▪ Not highly subject to IMT influence if not a farmer</li> <li>▪ IMT could be a competitor as political level of farmer is raised (new political entity is created)</li> <li>▪ Cynicism, trying to prove intelligence by criticizing perceived weaknesses of IMT</li> </ul>
<b>Donor Organizations</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Enhance social, financial and technical activities and expertise</li> <li>▪ Open channels for strengthening relationships between Egypt and Donor countries</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT and its benefits for Egypt's water resources</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> <li>▪ Donors might feel that they are being asked to give more than they are capable of giving. They must understand that more is to be gained from IMT than given to it.</li> </ul>

Target	Incentives	Disincentives
<b>Industry</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Enhance social, financial and technical activities and expertise</li> <li>▪ Open channels for strengthening relationships between Egypt and Donor countries</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT and its benefits for Egypt's water resources</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> </ul>

Target	Incentives	Disincentives
<b>6. General Public</b>	<ul style="list-style-type: none"> <li>▪ Clear understanding of IMT benefits</li> <li>▪ IMT is a better use of resources</li> <li>▪ MWRI open door policy, transparency of IMT structure...nothing secret</li> <li>▪ Involvement in something that is major for Egyptian development</li> <li>▪ Open dialogue with public about IMT, frankly and honestly, relating it to Egypt's water situation: quantity and quality.</li> <li>▪ Listening astutely to the public's concerns and questions</li> <li>▪ Respect for their opinion (enough to take it into consideration when creating PAC material, partnership in IMT)</li> <li>▪ Existing knowledge about limitations of Nile and need to collaborate with nine other nations vying for its water</li> <li>▪ Increase GDP/GNP, as crop yields increase, family buying power increases or remains steady</li> <li>▪ Increased employment opportunities through enhanced role of private sector (more jobs)</li> <li>▪ Friendly relations with other countries collaborating on water issues</li> </ul>	<ul style="list-style-type: none"> <li>▪ Misunderstanding of IMT and its benefits for Egypt's water resources</li> <li>▪ Lack of transparency of MWRI</li> <li>▪ Hiding bad news or information (in times of crisis, deceiving the public)</li> <li>▪ Tainting, censoring or modifying the information about IMT before it reaches public.</li> <li>▪ The Nile looks as plentiful as it always has</li> <li>▪ No knowledge of water crisis, the public doesn't feel the crisis or know how it will be aggravated in the future.</li> <li>▪ No knowledge about other nine nations depending on Nile</li> <li>▪ No knowledge about big Egyptian agricultural projects and their implications on water resources throughout the country</li> <li>▪ Perceived lack of respect for public opinion by MWRI...if it refuses to listen, the public will refuse to pay attention.</li> <li>▪ Cynicism, trying to prove intelligence by criticizing perceived weaknesses of IMT</li> <li>▪ Limitations of IMT communications staff to manage high demand of information dissemination</li> </ul>

## Target-Specific Messages (Short & Medium Term)

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
<b>1. Farmers</b>	<ul style="list-style-type: none"> <li>◆ Outline/list what farmers can expect from the MWRI.</li> <li>◆ Costs/benefits of IMT presented precisely and honestly: How much LE a farmer needs to invest, possible increased profits, improved services, efficiency of system, optimizing water usage, water quality.</li> <li>◆ Necessity of IMT for future of agricultural production, no alternatives</li> <li>◆ Stress advantages of IMT over current situation and other options, less bureaucracy.</li> <li>◆ Farmers should be active in the WUAs to assure that their needs and interest are respected when decisions are made. How?</li> <li>◆ IMT introduces democracy to water management. The farmers are ready for this responsibility and IMT can bring many improvements to their lives.</li> <li>◆ Farmers should be confident in themselves and their ability to manage the irrigation system. They can do a better job than the MWRI.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Modified messages of the short term according to the changing and growing needs of farmers.</li> <li>◆ Tailored messages to serve the different subgroups of farmers according to established priorities set through short-term IMT PAC formal and informal evaluation.</li> </ul>

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
	<ul style="list-style-type: none"> <li>♦ IMT leads to conserving water and this is a religious, social, economic goal of everyone.</li> <li>♦ MWRI is not trying to get rid of broken, misused equipment/physical facilities. During IMT, the MWRI will assist in upgrading this equipment.</li> </ul>	
<b>2. Press &amp; Media</b>	<ul style="list-style-type: none"> <li>♦ Needed support, importance of the cooperation and collaboration of the press and media for implementing IMT: political support and participation in distribution/dissemination network.</li> <li>♦ The private sector and a strong civil society is more efficient in management than government bodies. <b>(stress this!!)</b></li> <li>♦ IMT alleviates burden of bureaucracy and autocracy - farmers solve their own problems <b>(stress this!!!)</b></li> <li>♦ "Shaking the administration system" (Nasser)</li> <li>♦ Ways that MWRI and other Ministries are coordinating and cooperating on better water and land resources management.</li> <li>♦ IMT optimizes water and land resources leading to improved socio-economic conditions: development, progress. Weekly/monthly press releases posted on web site.</li> </ul>	<ul style="list-style-type: none"> <li>♦ Modified previous messages according to the changing and growing needs of the Press and Media</li> <li>♦ Tailored messages to serve the Press and Media according to established priorities set through short-term IMT PAC formal and informal evaluation.</li> </ul>

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
<b>3. Religious Bodies</b>	<ul style="list-style-type: none"> <li>◆ Needed support, Religious bodies are needed to influence farmers to take this responsibility. Political support and participation in distribution/dissemination network.</li> <li>◆ Ways for MWRI and religious bodies to coordinate and cooperate on better water and land resources management. Outline how and where religious bodies can participate, what is needed, Could they help finance or help market agriculture products?</li> <li>◆ IMT is also non-governmental in nature and promotes civil society</li> <li>◆ NGOs are welcome to collaborate with WUAs, MWRI and IMT</li> <li>◆ WUAs start with water issues, this can develop into activities related to products of water (agricultural marketing, etc.) and then can become community development catalysts for health, education, environmental issues, etc.</li> <li>◆ Quotes from Quran and Bible and conserving water</li> <li>◆ "God orders us to cooperate on good things for material benefits."</li> </ul>	<ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of Religious Groups.</li> <li>◆ Tailored messages to serve Religious Groups according to established priorities set through short-term IMT PAC formal and informal evaluation</li> </ul>

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
<p><b>4. MWRI Senior Officials and Middle Management</b></p>	<ul style="list-style-type: none"> <li>◆ Outline MWRI responsibilities/ scope of work in IMT.</li> <li>◆ MWRI is not trying to get rid of broken, misused equipment/physical facilities. During IMT, the MWRI will assist in upgrading this equipment.</li> <li>◆ IMT is not a consulting service. It is a distinct program not to be confused with water boards, BCWUAs or other MWRI initiatives. Note differences.</li> <li>◆ Statistics about IMT in Egypt, pilot areas, plans for expansion and projected growth of program.</li> <li>◆ Outline MWRI responsibilities/scope of work in IMT.</li> <li>◆ IMT provides better atmosphere in which to work, less complaints by farmers, more of a role of advisor.</li> <li>◆ Note difference s between IMT and water boards, BCWUAs or other MWRI initiatives.</li> <li>◆ IMT will not make them redundant, they are not going to loose their experience/influence/jobs. On the contrary, IMT offers new career opportunities in their field of work: specialization in IMT</li> </ul>	<ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of MWRI Senior and Middle Level officials.</li> <li>◆ Tailored messages to serve the MWRI Senior and Middle Level officials according to established priorities set through short-term IMT PAC formal and informal evaluation.</li> <li>◆ Modified previous messages according to the changing and growing needs of MWRI Engineers and Field Staff.</li> <li>◆ Tailored messages to serve the MWRI Engineers and Field Staff according to established priorities set through short-term IMT PAC formal and informal evaluation.</li> </ul>
APRP Water Policy Program	E-4	Irrigation Management Transfer Public Awareness Campaign

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
Engineers and Field staff	<ul style="list-style-type: none"> <li>◆ Role in irrigation service will be more effective</li> <li>◆ Successful IMT is a good thing for their careers.</li> <li>◆ IAS strategy - 7steps for enlisting WUA members</li> <li>◆ Farmers should be active in the WUAs to assure that their needs and interest are respected.</li> <li>◆ MWRI is not trying to get rid of broken, misused equipment/physical facilities. During IMT, the MWRI will assist in upgrading this equipment</li> </ul> <p>Engineers understand IMT in the field best. They should maintain contact with the communications unit to suggest how to improve communications tools. Formal and non-formal ways of evaluating the communications program should be outlined (surveys, focus groups)</p>	
<b>6. Engaged Public MALR</b>	<ul style="list-style-type: none"> <li>◆ Note difference s between IMT and water boards, BCWUAs or other MWRI initiatives.</li> <li>◆ Needed support, importance of MALR cooperation and collaboration for implementing IMT, political support and participation in distribution network.</li> <li>◆ New possible roles/coordination between MALR institutions with farmers' organizations.</li> <li>◆ Ways for MWRI and MALR to coordinate and cooperate on better water and land resources management.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of MWRI Engineering and field staff.</li> <li>◆ Tailored messages to serve the MWRI engineers and field staff according to established priorities and through short-term IMT PAC formal and informal evaluation.</li> </ul>

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
<p>Ministries of education, youth, sport and culture</p>	<ul style="list-style-type: none"> <li>◆ Ways for MWRI and other Ministries to coordinate and cooperate on better water and land resources management.</li> <li>◆ Needed support, importance of other Ministries' cooperation and collaboration for implementing IMT: political support and participation in distribution/dissemination network, vehicle of IMT outreach material.</li> <li>◆ Stress encouragement of civil society in Irrigation Management Transfer Ministry of education (schools and universities)</li> <li>◆ Should begin giving water management diplomas in the Faculty of Engineering</li> <li>◆ Encourage research in Irrigation Management Transfer</li> <li>◆ Adding IMT to curriculum in all levels at schools.</li> <li>◆ Raise awareness of need to conserve water as a sign of solidarity with farmers taking on irrigation management</li> <li>◆ How can students contribute to the conservation efforts.</li> <li>◆ Need for student groups to take on promotion of water issues as extracurricular activities, letter campaigns to farmers, environmental clubs volunteering services, etc.</li> <li>◆ How can schools be a vehicle for educating adults, transferring information through children to their</li> </ul>	<ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of the Ministry of Education, schools and universities.</li> <li>◆ Tailored messages to serve the Ministry of Education, schools and universities according to established priorities set through short-term IMT PAC formal and informal evaluation .</li> <li>◆ Ministry of Youth, Ministry of Sport and Ministry of Culture (community centers, sports clubs and cultural venues can be targeted directly):</li> <li>◆ Outline ways that the ministries can raise awareness of need to conserve water as a sign of solidarity with farmers taking on irrigation management.</li> <li>◆ Enlist youth and sports clubs to take on promotion of water issues as additional activities, letter campaigns to farmers, volunteering services, etc.</li> <li>◆ Need for artists (playwrights, theatre producers, visual arts) to take on promotion of water issues as additional activities, incorporating IMT goals/issues into their work.</li> <li>◆ Announce awards by MWRI to most outstanding representations of IMT ideas in the arts, informing all that noted contributions will have press coverage and possibly other rewards.</li> <li>◆ Schools and universities according to established priorities set through short-term IMT PAC formal and</li> </ul>

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
	<p>parents.</p> <ul style="list-style-type: none"> <li>◆ Explanation of youth competitions, annual awards, etc.</li> </ul> <p>Ministry of Youth, Ministry of Sport and Ministry of Culture (community centers, sports clubs and cultural venues can be targeted directly):</p> <ul style="list-style-type: none"> <li>◆ Outline ways that the ministries can raise awareness of need to conserve water as a sign of solidarity with farmers taking on irrigation management.</li> <li>◆ Enlist youth and sports clubs to take on promotion of water issues as additional activities, letter campaigns to farmers, volunteering services, etc.</li> <li>◆ Need for artists (playwrights, theatre producers, visual arts) to take on promotion of water issues as additional activities, incorporating IMT goals/issues into their work.</li> <li>◆ Announce awards by MWRI to most outstanding representations of IMT ideas in the arts, informing all that noted contributions will have press coverage and possibly other rewards.</li> </ul>	<p>informal evaluation. Ministry of Youth, Ministry of Sport and Ministry of Culture (community centers, sports clubs and cultural venues can be targeted directly):</p>

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
Ministry of Environment	<ul style="list-style-type: none"> <li>◆ Ways for MWRI and other Ministries to coordinate and cooperate on better water and land resources management.</li> <li>◆ Needed support, importance of other Ministries' cooperation and collaboration for implementing IMT: political support and participation in distribution/dissemination network, vehicle of IMT outreach material.</li> <li>◆ Stress encouragement of civil society in Irrigation Management Transfer</li> </ul>	<ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of the Ministries.</li> <li>◆ Tailored messages to serve the Ministries according to established priorities set through short-term IMT PAC formal and informal evaluation.</li> </ul>
Non-Governmental Organizations	<ul style="list-style-type: none"> <li>◆ Needed support, importance of NGOs cooperation and collaboration for implementing IMT: political support and participation in distribution / dissemination network</li> <li>◆ Ways for MWRI and NGOs to coordinate and cooperate on better water and land resources management. Outline how and where NGOs can participate, what is needed, Could they help finance or market agriculture products?</li> <li>◆ IMT is also non-governmental in nature and promotes civil society.</li> <li>◆ IMT complies with objectives of NGOs (mandates and objectives are similar / parallel)</li> <li>◆ IMT supports decentralization and privatization, a main interest of NGOs.</li> <li>◆ IMT is strengthening WUAs and offering NGOs new</li> </ul>	<p><b>Ongoing Messages:</b></p> <ul style="list-style-type: none"> <li>◆ Needed support, importance of NGOs cooperation and collaboration. For implementing IMT: political support and participation in distribution/ dissemination network.</li> <li>◆ Ways for MWRI and NGOs to coordinate and cooperate on better water and land resources management. Outline how and where NGOs can participate, what is needed, Could they help finance or help market agriculture products?</li> <li>◆ IMT is also non governmental in nature and promotes civil society.</li> <li>◆ IMT complies with objectives of NGOs (mandates and objectives are similar / parallel)</li> <li>◆ IMT supports decentralization and privatization, a</li> </ul>

	<p>partners for community development.</p> <ul style="list-style-type: none"> <li>◆ IMT helps create new business / enterprise for enhanced role of private sector.</li> <li>◆ NGOs are welcome to collaborate with WUAs, MWRI and IMT.</li> <li>◆ IMT broadens scope of work of NGOs, WUAs start with water issues, this can develop into activities related to products of water (agricultural marketing, etc.) and then can become into community development catalysts for health, education, environmental issues, etc.</li> </ul>	<p>main interest of NGOs.</p> <ul style="list-style-type: none"> <li>◆ IMT is strengthening WUAs and offering NGOs new partners for community development.</li> <li>◆ IMT helps create new business / enterprise for enhanced role of private sector.</li> <li>◆ NGOs are welcome to collaborate with WUAs, MWRI and IMT.</li> <li>◆ IMT broadens scope of work of NGOs, WUAs start with water issues, this can develop into activities related to products of water (agricultural marketing, etc.) and then can become into community development catalysts for health, education, environmental issues, etc.</li> </ul> <p><b>New Messages:</b></p> <ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of NGOs.</li> <li>◆ Tailored messages to serve NGOs according to established priorities set through short-term IMT PAC formal and informal evaluation.</li> </ul>
<b>Politicians</b>	<ul style="list-style-type: none"> <li>◆ Needed support, importance of politicians cooperation and collaboration for implementing IMT: political support and participation in distribution / dissemination network.</li> <li>◆ Ways for politicians to cooperate on better water and land resources management. Outline how and where they can participate, what is needed.</li> <li>◆ IMT promotes civil society.</li> <li>◆ Beneficial to constituents.</li> </ul>	<p><b>Ongoing Messages:</b></p> <ul style="list-style-type: none"> <li>◆ Needed support, importance of politicians cooperation and collaboration for implementing IMT: political support and participation in distribution / dissemination network.</li> <li>◆ Ways for politicians to cooperate on better water and land resources management. Outline how and where they can participate, what is needed.</li> <li>◆ IMT is promotes civil society in parallel with national programs and policies.</li> <li>◆ Beneficial to constituents.</li> </ul> <p><b>New Messages:</b></p>

		<ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of NGOs.</li> <li>◆ Tailored messages to serve NGOs according to established priorities set through short-term IMT PAC formal and informal evaluation.</li> </ul>
<b>Donor Organizations</b>	<p><b>Ongoing Messages:</b></p> <ul style="list-style-type: none"> <li>◆ Needed support, importance of donor organizations' cooperation and collaboration for implementing IMT:</li> <li>◆ Ways for MWRI and Donor Agencies to coordinate and cooperate on better water and land resources management. Outline how and where they can participate, what is needed, Could they help finance or help market agriculture products?</li> <li>◆ IMT is also non-governmental in nature and promotes civil society.</li> <li>◆ IMT complies with objectives of NGOs (mandates and objectives are similar/parallel)</li> <li>◆ IMT supports decentralization and privatization, a main interest of NGOs.</li> <li>◆ IMT is strengthening WUAs and offering donor organizations' new partners for community development.</li> <li>◆ IMT helps create new business/enterprise for enhanced role of private sector.</li> <li>◆ Donor Organizations are welcome to collaborate with WUAs, MWRI and IMT.</li> </ul> <p><b>New Messages:</b></p> <ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of NGOs.</li> <li>◆ Tailored messages to serve NGOs according to established priorities set through short-term IMT PAC formal and</li> </ul>	

	informal evaluation..	
<b>Industry</b>		<ul style="list-style-type: none"> <li>◆ The success of IMT will lead to stability in water resources, decreasing the industrial risks associated with shortages.</li> <li>◆ IMT leads to economic, social and political stability in Egypt, providing for the right conditions to produce industrially and attract investment to the industrial sector.</li> <li>◆ How can Industry participate in the success of IMT? (For example: financing ongoing media campaign)</li> </ul>

Target Group	Target-Specific Messages — Short Term	Target-Specific Messages — Medium Term
<b>6. General Public</b> 6.	<ul style="list-style-type: none"> <li>◆ Ministry is embarking on new course to secure the water resources needed for social and economic development through more efficient management</li> <li>◆ IMT is a system/vehicle to be used to better control water pollution, environmental problems and encroachment.</li> <li>◆ Local participation will bring about more efficient water management and, thus, enhance productivity vis-a-vis units of land and water. Water is then used more wisely for the benefit of all. Water will be available for future development needs, private sector companies, private sector needs: JOBS!</li> <li>◆ IMT secures availability and equity in water distribution according to requirements, both temporal and spatial (when and where)</li> <li>◆ Economic benefits: as operation and maintenance is cheaper, agricultural production becomes more efficient and this could keep food prices down.</li> <li>◆ Routine bureaucracy is minimized</li> <li>◆ Quick responses in attacking issues and problems</li> <li>◆ Team work makes water management easier, decreasing the burden of effort and the burden on resources.</li> </ul> <ul style="list-style-type: none"> <li>◆ Each country must collaborate and learn from each other</li> </ul>	<ul style="list-style-type: none"> <li>◆ Modified previous messages according to the changing and growing needs of the General Public.</li> <li>◆ Tailored messages to serve the General Public according to established priorities set through short-term IMT PAC formal and informal evaluation</li> </ul>

	<p>in dealing with an important resource such as water.</p> <ul style="list-style-type: none"> <li>◆ Let's take our problems into our own hands.</li> <li>◆ The private sector and a strong civil society is more efficient in management than government bodies.</li> <li>◆ IMT alleviates burden of bureaucracy and autocracy - farmers solve their own problems (<b>stress this!!!</b>)</li> <li>◆ "Shaking the administration system" (Nasser)</li> <li>◆ IMT leads to conserving water and this is a religious, social, economic goal of everyone.</li> <li>◆ IMT optimizes water and land resources leading to improved socio-economic conditions: development, progress, JOBS!</li> <li>◆ Ways that MWRI and other Ministries are coordinating and cooperating on better water and land resources management.</li> </ul>	
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## **Complete Set of Brochures and Print Materials**

The following section contains the complete set, or “family” of public awareness print materials for the IMT Public Awareness Campaign.

The materials are referenced here sequentially:

- 1. Introductory Brochure**
- 2. FAQ Brochure** (Frequently Asked Questions about IMT)
- 3. MWRI Field Staff Guide on IMT**
- 4. Tri-fold Farmer FAQ Information Series (1-4)**
- 5. Brochure for School Teachers**
- 6. Brochure for Religious Leaders**
- 7. Brochure for General Public**
- 8. Children’s Activity Booklet**
- 9. General Posters on IMT (4)**
- 10. Logos for the IMT Program (8 samples on 3 sheets)**

## Pre-test Comments

A workshop was held on August 27th in Cairo at the Hotel Pyramysa. Approximately 20 water users and 20 ministry staff from the four IMT pilot areas participated. We took advantage of this opportunity to present some of the pilot program print materials to the participants in an effort to solicit feedback and improve the work. This was not a pre-test because all of the participants were already quite familiar with IMT and the issues/messages being presented in the materials. Nevertheless, we conducted the presentation as a pre-test, asking the participants to review the materials and then answer specific questions about each.

After the entire group was presented the Introductory brochure, the ministry staff participants were presented the FAQ and the Field Staff Guide while the water users were presented the four Farmers' Series FAQ panel tri-folds. The posters and fact sheets were displayed on the walls of the conference room and general comments made about them were recorded.

The questions asked the participants about the print materials were as follows:

1. According to your opinion, what is the main message of this brochure?
2. According to your opinion, who is the target of this brochure?
3. Has the proposed message of the brochure been presented clearly?
4. Is this brochure useful in educating people about IMT?
5. What in particular of the following topics attracted your attention?
  - a. color
  - b. content
  - c. language
  - d. photos
  - e. general appearance
6. What could be done to make this brochure more useful?
7. General Comments

To summarize the responses of the participants, we will look at each print item individually.

### **Introductory Brochure**

1. According to your opinion, what is the main message of this brochure?
2. According to your opinion, who is the target of this brochure?

*Most participants understood the message of the brochure and targeted public.*

3. Has the proposed message of the brochure been presented clearly?  
*Several participants noted that there was too much information presented in this document and that the font was too small. The document presented was in a format 80% of the master. Nevertheless, the comments were taken into consideration during modification.*

4. Is this brochure useful in educating people about IMT?  
*It was generally agreed that this brochure would be useful for the program.*

5. What in particular of the following topics attracted your attention?

- a. color *High Approval*
- b. content *Medium to High Approval*
- c. language *Medium to High Approval*
- d. photos *High Approval*
- e. general appearance *High Approval*

6. What could be done to make this brochure more useful?

*Limit the text. Make the font bigger.*

7. General Comments

*On the whole, the group liked the brochure and thought it would introduce IMT well to new comers.*

### **FAQ**

1. According to your opinion, what is the main message of this brochure?

2. According to your opinion, who is the target of this brochure?

*Most participants understood the message of the brochure and targeted public.*

3. Has the proposed message of the brochure been presented clearly?

*Most people agreed that the material presented covered the important issues surrounding IMT.*

4. Is this brochure useful in educating people about IMT?

*It was generally agreed that this brochure would be useful for the program.*

5. What in particular of the following topics attracted your attention?

- a. color *Medium to High Approval*
- b. content *Medium to High Approval*
- c. language *High Approval*
- d. photos *High Approval, some questions about children shots*
- e. general appearance *High Approval*

6. What could be done to make this brochure more useful?

*It was requested that all of the statistics provided in this brochure be checked and double checked to present misinformation.*

7. General Comments

*On the whole, the group liked the brochure and thought it would introduce IMT well to new comers.*

### **Field Staff Guide**

1. According to your opinion, what is the main message of this brochure?

2. According to your opinion, who is the target of this brochure?

*Most participants understood the message of the brochure and targeted public.*

3. Has the proposed message of the brochure been presented clearly?

*Most people agreed that the material presented covered the important issues surrounding IMT. Some engineers added information that needed to be included.*

4. Is this brochure useful in educating people about IMT?

*It was generally agreed that this brochure would be useful for the program by setting a standard for the field staff, regulating the information they disseminate.*

5. What in particular of the following topics attracted your attention?

- a. color *Medium Approval*
- b. content *Medium Approval*
- c. language *High Approval*
- d. photos *High Approval*
- e. general appearance *Medium Approval*

6. What could be done to make this brochure more useful?

*It was requested that some of the titles of the specific topics be changed.*

7. General Comments

*On the whole, the group liked the idea of a brochure for the field staff. They believe that the working group should concentrate on this tool to try to perfect the messages being communicated.*

8. What additional subjects should be added to this guide?

*No additional subjects were recommended.*

### **Farmers' FAQ Series**

Although the four brochures targeting water users were presented individually, the responses solicited were similar for each and are thus being reported as a group.

1. According to your opinion, what is the main message of this brochure?

2. According to your opinion, who is the target of this brochure?

*Most participants understood the message of the brochure and targeted public.*

3. Has the proposed message of the brochure been presented clearly?

*Most people agreed that the material presented covered the important issues surrounding IMT. The illustrations were generally well appreciated.*

4. Is this brochure useful in educating people about IMT?

*It was generally agreed that this brochure would be useful for the program when expansion begins.*

5. What in particular of the following topics attracted your attention?

- a. color *High Approval*
- b. content *High Approval*
- c. language *High Approval*
- d. photos *High Approval*
- e. general appearance *High Approval*

6. What could be done to make this brochure more useful?

*It was requested that some of the font be increased in size and that the language be checked to assure that it is farmer friendly.*

## 7. General Comments

*On the whole, the group liked the material. They think that the material fits well into the whole program and appreciated that a special effort was made to create individualized print material for them.*

All of the comments were respected and taken seriously. The working group each took home a complete set of the print materials to refine the documents according to the comments made. Several of the team members reviewed the questionnaires and attempted to make modifications accordingly. The graphic designers enlarged font in certain brochures and changed colors of certain titles according to suggestions made in order to improve clarity.

The exercise was very useful for improving the effectiveness of the material being created. Because of the comments of the participants, the program is now at a more effective level of communications.

It is highly recommended that each print item be pre-tested formally with focus groups that have no information about IMT. This should happen before the final edit is locked and the prototypes go to press.

## **Print Estimates**

The attached pro-forma invoices indicate the cost of printing the prototypes that have been designed to launch the pilot program for IMT PAC. It must be noted that before the activity booklet can be reproduced and distributed widely, the rights to use the BAKKAR image must be negotiated with Dr. Mona Abdoul Nasr of Cairo Cartoons, the owner. Dr. Mona provided the images of BAKKAR for exclusive use in the prototypes with the understanding that these materials were only for MWRI internal use.

It is also advised that an additional 2000 LE be paid the illustrator, Mohamed Sami, who provided his professional artistic services for the creation of the Children's Activity Booklet prototype at a minimal fee. He was assured that in the event that his images would be used in a national campaign, an additional 2000 LE would be paid him. Mr. Sami participated in this project out of good will and offered his illustrations at a very low fee. He should be compensated better in the event that his images are used more widely.

The graphic designer who created this material should be used as a liaison in printing on a massive scale. Amr Thakeb would alleviate many problems if his services were hired to manage the printing of these materials or, at least, manage pre-press activities. Mr. Thakeb has done an excellent job in putting together the prototypes and he would undoubtedly be a great ally to the MWRI Water Communications Unit and IMT PAC Team in advancing this program to the next step.

A final suggestion about the print program before it goes to press for replication is that professional editors be hired to clean the language of all brochures and booklets with the objective to making it better and more target friendly. Dr. Mona has suggested the name of a children's writer (Amal Farag, tel: 571-6621, mobile: 010-620-1018) who would be able to transform the text in the activity booklet into something much more attractive for children aged 10 - 12, the targeted audience. If an editor can be hired to do the same for the Farmers' FAQ Series, the tools would increase in efficiency. Of course, focus groups should be gathered to pre-test all of the material and streamline the messages and images used.

## Sample Video Script

<p><b>SFX:</b> <i>Music up.</i></p> <p>Egypt is one of many countries in the world facing water shortages in the future. The population of our country is growing rapidly while our water resources are not. This decreases the amount of water available per person.</p>	<p><i>Open on clips of the Nile, water ways, canals and irrigation pumps.</i></p>
<p>By the year 2025, it is predicted that Egyptians will only have 582 m<sup>3</sup> of water per person per year. This is less than one-third the amount that each Egyptian had in 1959. It is also well below the International Water Poverty Level of 1000 m<sup>3</sup> water per person per year.</p>	<p>Fade to images of pedestrians in a busy Cairo street. Superimpose numbers. Shots of groups of people. Egyptian life in the cities and countryside.</p>
<p>Let's have a look at how water users and the Ministry of Water Resources and Irrigation are working together to more efficiently use one of Egypt's most precious natural resources: water.</p> <p style="text-align: center;"><i>SFX:</i> Music heightens.</p>	<p>When an image of a group of children freezes, the host walks into frame. He continues speaking as he addresses camera.</p> <p>Commence opening montage. Opening montage should conclude with water flowing out of a pump station.</p>

<p>SFX: <i>Music is lowered.</i></p> <p>Hi, I'm Hisham Abbess. Water is essential to all of us. I am here today to raise a very important issue facing our nation. Egyptians have been blessed for thousands of years with the water of the Nile. However, our growing population is beginning to demand more water than the Nile and other sources of water are capable of providing. We must begin to use water more wisely and efficiently if we are to assure a prosperous future for ourselves and generations to come.</p>	<p>The host walks in front of this image of water flowing out of pump station.</p> <p>Dissolve to illustrations of water supply from Farmer's Series.</p> <p>Background fades to a regional map of the Nile.</p>
<p>Egypt is not the only country that depends on the Nile for water. Having to share its resources with 9 other nations, we have a fixed quota of 55.5 billion m3 of water per year. In the year 2017, our national water requirement is expected to exceed our quota by 30 billion m3.</p>	<p>Pan the regional map from one country to the next.</p> <p>Dissolve to illustration of the countries of the region. Superimpose numbers.</p>
<p>The Egyptian government is addressing these water issues very seriously and taking bold appropriate measures to improve water user efficiency. Everyone knows how much we need water, not just to quench our thirst but to satisfy our food needs as well. Water shortages can drastically affect the availability of the wonderful vegetables and agricultural produce we enjoy today. We must begin</p>	<p>Clips of farm harvesting, irrigation pumps, taking produce to market, market shots with consumers purchasing produce in a market. Host walks in front of frozen image of consumer in market.</p>

preparing now to deal successfully with this challenge.	
The Ministry of Water Resources and Irrigation has been working hard to identify the best ways to solve the country's looming water shortage problems.	Clips of Ministry meetings, workshops, flowing water through canals, engineers with farmers.
Ministry staff, in collaboration with water users, have been studying several plausible options at hand: <ul style="list-style-type: none"> <li>- Developing additional sources of water</li> <li>- Developing the government's ability to sustain the irrigation network more efficiently</li> <li>- Adapting new approaches for efficient management of the irrigation network.</li> </ul>	Dissolve to images of desalinization machines, ministry meetings with engineers discussing irrigation networks, ministry engineers meetings with farmers. Superimpose the text of each option on top of image.
The MWRI continues to search for and invest in alternative sources of water and ways to manage effectively the operation of all sectors of the expansive Egyptian irrigation system. To solve the problem, it needs sufficient resources, financial capability and a highly trained technical staff.  Music. Airy space.	Cut to host walking out of the MWRI building.  10 second montage of Ministry projects.
The best and most immediate solution for our water problem is to rehabilitate and improve the management of Egyptian irrigation. Improved management of irrigation leads to greater operating efficiency and increased agricultural productivity.	Images of farmers meeting with the Ministry engineers, farmers meeting and working together, farmers and Ministry staff shaking hands, water flowing.
This solution is within our own reach and we	

can make it possible without waiting on external factors, large financial investments or experimental projects to mature.	Cut to host in front of MWRI building.
During the past few years, the MWRI has initiated several innovative programs to improve irrigation management, creating farmer-based Water Boards and Water User Associations to stimulate more user participation in management. It is widely believed by irrigation experts that the more direct involvement of stakeholders in management of selected irrigation networks, the greater the benefits for all, the national economy included.	<i>Cut to frozen or moving images of farmers meeting with Ministry Engineer out in a field. Background image fades from one shot to the next of active farmers around the irrigation pumps and canals.</i>
Irrigation Management Transfer is the next step in the development of the irrigation system. IMT is a strategy for transferring management of selected sections of the irrigation and drainage systems to stakeholder organizations. This program gives stakeholders the responsibility for management and finance of operation and maintenance activities. This is a program that has been accepted worldwide as a preferred approach for more efficient irrigation.	Images of farmers meeting and voting on issues. Farm shots, water reaching the farms.  Cut to animated logo coming together on screen. This image should begin with above shot of eight farmers negotiating in a circle, these farmers become the logo as it spins onto the wave of water.
Changes and amendments in Egyptian irrigation laws and regulations make IMT possible. IMT will be a national level program that operates within a balanced institutional and legislative framework.	Cut to shots of parliament discussions. Illustrations of legal documents that demonstrate the legalities of the program.

<p>IMT is a decentralized water management approach that can help farmers better solve their own everyday irrigation problems. IMT allows farmers to become partners with the Ministry of Water Resources and Irrigation in the rehabilitation of minor hydraulic stations and canal banks according to their needs. The program also raises awareness of the importance of better water management.</p>	<p>Superimpose the logo on top of images of fields. Cut to shots of smiling farmers in groups, working together, instructing professionals at a major pump, having the canals cleaned.</p>
<p>It makes good sense involving the water users more in the management of a system that they depend on daily. They are most likely the ones who can manage their needs best.</p>	<p>Cut to host walking near irrigation pump. He stops to speak with several farmers. Beginning of testimonials.</p>
<p>It is a lot easier for us, as water users in the field, to manage a system to serve everyone equally.</p>	<p>All testimonials are shot close-up and superimposed against backgrounds all over Egypt, beginning with farm shots.</p> <p>Farmer near pump.</p>

<p>We use the canals daily and know when they need to be cleaned or repaired. Managing upkeep ourselves assures that the job gets done quickly.</p>	<p>Cut to farmer near a trash filled canal.</p>
<p>In the thirty countries worldwide where IMT has been adapted as national policy for irrigation management, the following benefits have been noted and are common to all:</p>	<p>Cut to Ministry field staff testimonial.</p>
<ul style="list-style-type: none"> <li>- Greater irrigation water efficiency</li> <li>- Increase in crop intensity, yields and income</li> <li>- Equity in water distribution</li> <li>- Insuring of availability of water in time and place</li> <li>- Flexibility for expansion in cropping</li> <li>- Increased ability to solve on-farm and branch level network problems and strengthened structure to assure conflict resolution for both technical and financial problems</li> <li>- Lower irrigation costs: an overall reduction in the price of irrigation</li> <li>- Higher quality technical services for farmers</li> <li>- Pride in participating in decision making and a feeling of ownership/sovereignty and higher social standing</li> </ul>	<p>Superimpose the benefits written in script (copy) over images of smiling farmer/country folk/water user faces.</p> <ul style="list-style-type: none"> <li>- Greater irrigation water efficiency</li> <li>- Increase in crop intensity, yields and income</li> <li>- Equity in water distribution</li> <li>- Insuring of availability of water in time and place</li> <li>- Flexibility for expansion in cropping</li> <li>- Increased ability to solve on-farm and branch level network problems and strengthened structure to assure conflict resolution for both technical and financial problems</li> <li>- Lower irrigation costs: an overall reduction in the price of irrigation</li> <li>- Higher quality technical services for farmers</li> <li>- Pride in participating in decision making and a feeling of ownership/sovereignty and higher social standing</li> </ul>

<p>Benefits never come without costs and responsibilities. In the IMT program, the services of improved water delivery and more efficient irrigation management will have minimal costs for farmers.</p> <ul style="list-style-type: none"> <li>- Administration</li> <li>- Operation of irrigation system at the Branch Canal level</li> <li>- Cleaning and maintenance of canals, pumps and structures</li> <li>- Maintenance of minor hydraulic stations and canal banks</li> </ul>	<p>Cut to host in front of illustrated image of balance/scale with benefits and costs. List the costs of IMT superimposed over farm images relating to the topics. Host voice over.</p> <ul style="list-style-type: none"> <li>- Administration</li> <li>- Operation of irrigation system at the Branch Canal level</li> <li>- Cleaning and maintenance of canals, pumps and structures</li> <li>- Maintenance of minor hydraulic stations and canal banks</li> </ul>
<p>It is worth it for us to invest in the system because it allows us to assure that it functions best for our own use.</p>	<p>Woman cooking in traditional oven testimonial</p>
<p>We benefit most directly from IMT. Everyone knows that it takes money to make money. The benefits are well worth the investment.</p>	<p>Farmer sitting under tree having a cup of tea testimonial.</p>
<p>Experience in different countries where IMT has been adopted has proven that the costs of maintaining the system is less than the increases in farmers' income gained from the benefits. Farmers should not confuse these new costs as being anything but the price of improved services. They are not paying for the water, simply a better and more efficient way of obtaining it.</p>	<p>Freeze image and dissolve host on top of it. Dissolve background to show maps of countries around the world where IMT is being used.</p>
<p>Egypt is ready to try new ways of irrigation management , ways that are being proven to</p>	<p>Cut to testimonial of student from countryside.</p>

work worldwide.	
Traditional ways of irrigation need amending in order to serve the growing population in Egypt.	Testimonial of a farmer at his personal water canal.
IMT is not a radical change and should not be regarded as such. It is just a moderate modification in the mechanism of irrigation management involving the water users and more efficient practices.	Testimonial of Irrigation Engineer/Field staff.  Highlight words on screen: "efficient water delivery".
Everything IMT promotes is in harmony with Islam, Christianity and sound agricultural practices.	Testimonial of Imam.
Quotes about responsibility, water usage, etc. from the Quran/Bible.	Testimonial by Christian priest and by Islamic Imam. One quote each.
IMT can improve the productivity of land and water, raising the standard of living for farm families. By taking a more responsible role in the irrigation system, farmers can assure that their water needs are met sufficiently and on a timely basis.	Cut to host walking through a cotton field.
The Egyptian government, through the MWRI, will always be a partner to farmers in managing the country's irrigation networks. It will maintain full responsibility of major canals and hydraulic works that affect the transferred system and its sustainability while continuing to monitor the network, offer advise and give hands-on assistance when needed. IMT simply establishes a new relationship between the government and the	Testimonial by Minister of Water Resources and Irrigation in his office.

farmers on the last reaches of the canal,	
Although water users will have enhanced roles and responsibilities, the Ministry staff will always be involved in irrigation policies, planning, monitoring, evaluation, settling disputes and enforcing rules and laws that others cannot. Water advisory services will continuously be improved to increase the farmers' knowledge about managing their irrigation system. By law, the MWRI must assure monitoring and maintenance of the main water system while continuing to construct and rehabilitate particular irrigation systems, structures and canals.	Minister's voice over. Images of farm life, harvesting, irrigation networks, pumps, farmer gatherings, etc.
Without the MWRI's continued support in maintaining, monitoring and evaluating the entire Egyptian irrigation system, IMT cannot succeed at the Branch Canal level. Similarly, it cannot succeed if the water users do not take on some of the responsibility for the system. Managing irrigation hand in hand is the only appropriate and promising approach.	Back to image of Minister in office.
IMT makes sense. We should all do what we can to help farmers and water users make the most of the available water.	Female college student.
If water users do their part, the rest of the population should also begin to think how they can contribute...starting with not wasting our precious water.	Female professional.

The responsibility is with everyone...and it is we children who will benefit most from wise actions taken today.	Children playing together. One turns to camera to make statement.
Additional information about IMT is easy to obtain from the IMT web site, the IMT PAC team (UNIT) in the MWRI Communications Unit or at the Irrigation Advisory Services local offices.  SFX: Music heightens	Cut to host. Superimpose info. at the bottom of the screen “ <u>For more information about IMT, contact the Water Communications Unit at the MWRI, tel: _____</u> ”
The future is ours, lets' invest in it wisely by supporting IMT.	Another child testimonial.
SFX: Music fades.	Animated logo and tag.